

Reading an app: Dimensions of meaning-making in digital literary reading in early childhood

Aline Frederico

Abstract


The format of the literary app allowed the development of a new type of digital literature that gained special prominence in the production of digital texts for children. This article aims to discuss digital reading in early childhood from the empirical analysis of reading events involving children and their parents engaged with literary apps. In a qualitative study, the shared reading of literary apps was observed and analyzed according to the theoretical and methodological framework of multimodal social semiotics, in dialogue with interdisciplinary theoretical discussions around embodiment, affect and agency. Both the readers' responses and the textual characteristics of the literature in app format were taken into account in the analysis of the meaning transactions occurred between child, parent(s) and literary text. The study points out three key dimensions in the reading of literary apps in childhood: (1) embodiment - the reader's body plays an essential role in the construction of meaning and in the phenomenological experience of digital reading; (2) affect - the reader exchanges, within the fictional world that they temporarily inhabit, intensities and emotions with fictional elements, such as characters, and with their parents; (3) agency - readers have agency to negotiate their participation and meaning-making in reading, in spite of design limitations, and expresses their agency through performance and subversion.

Keywords: Reading; Digital children's literature; Digital communication; Technology and education.

Aline Frederico

Pontifícia Universidade Católica de São Paulo (PUC-SP)

E-mail: dr.aline.frederico@gmail.com

 <https://orcid.org/0000-0002-5670-8548>

Recebido em: 12/05/2019
Aprovado em: 13/05/2020



<http://www.perspectiva.ufsc.br>

 <http://dx.doi.org/10.5007/2175-795X.2021.e66013>

Resumo**Lendo um aplicativo: dimensões da construção de sentido na leitura literária digital na primeira infância**

O formato dos aplicativos literários possibilitou o desenvolvimento de um novo tipo de literatura digital, que ganhou proeminência na produção voltada à infância. Este artigo visa discutir a leitura digital na primeira infância a partir da análise empírica de eventos de letramentos que envolveram crianças lendo aplicativos com seus pais. Num estudo qualitativo, a leitura compartilhada de aplicativos literários foi observada e analisada segundo referenciais teóricos e metodológicos da semiótica social multimodal, em diálogo com discussões teóricas interdisciplinares ao redor dos conceitos de corporeidade, afetividade e agência. Tanto as respostas leitoras como as características textuais da literatura em formato aplicativo foram levadas em conta na análise das transações de sentido ocorridas entre criança, mãe/pai e texto literário. O estudo aponta três dimensões centrais da leitura de aplicativos literários na infância: (1) a corporeidade (*embodiment*) – o corpo do leitor tem papel essencial na construção de sentido e na experiência fenomenológica da leitura digital; (2) afetividade – o leitor troca, dentro do mundo ficcional que habita temporariamente, intensidades e emoções com elementos ficcionais, como os personagens, e com seus pais; (3) agência – o leitor tem agência para negociar sua participação e a construção de significado na leitura, a despeito das limitações de *design* das obras, e a expressa por meio da performance leitora e da subversão.

Palavras-chave:

Leitura.
Literatura Infantil
Digital.
Comunicação
Digital.
Informática e
Educação.

Résumé**Lire une application : les dimensions de la création du sens dans la lecture littéraire numérique a la petite enfance**

Le format des applications littéraires a permis le développement d'un nouveau type de littérature numérique qui a acquis une importance particulière dans la production à destination de l'enfance. Cet article vise à discuter des caractéristiques fondamentales de la lecture d'applications littéraires dans la petite enfance à partir de l'analyse empirique des événements de littératie impliquant des enfants qui lisent des applications avec leurs parents en Angleterre. Dans cette étude qualitative, la lecture partagée de applications littéraires a été observée et analysée selon les références théoriques et méthodologiques de la sémiotique sociale multimodale, en dialogue avec des discussions théoriques interdisciplinaires sur l'incarnation (*embodiment*), l'affect et l'agence. Les réponses des lecteurs et les caractéristiques textuelles de la littérature au format d'application ont été prises en compte dans l'analyse des transactions de sens entre enfants, parent(s) et texte littéraire. L'étude souligne que la lecture d'applications littéraires dans l'enfance est : (1) profondément incarnée (*embodied*) – le corps du lecteur joue un rôle essentiel dans la construction du sens et l'expérience phénoménologique de la lecture numérique ; (2) affective – le lecteur échange, dans le monde fictionnel qu'il habite temporairement, intensités et émotions avec des éléments fictionnels, comme les personnages, et avec ses parents. (3) agentive – le lecteur dispose d'une agence pour négocier sa participation et la construction du sens dans la lecture, en dépit des limitations de *design* et il exprime son agence par leurs performances et la subversion.

Mots-clés :

Lecture.
Littérature
jeunesse
numérique.
Communication
numérique.
Technologie et
education.

Introduction

The ubiquitous use of mobile devices such as tablets and smartphones has promoted a new format for accessing content and services: the application format. An application, or app, is “a computer program designed to process data electronically, facilitating and reducing the time a user takes to performs a task” (APLICATIVO, s.d., our translation). There are apps to exercise, shop, pay bills, meditate, play, create, exchange and access texts of all kinds – words, images, videos, sounds, and so on. Accessing and creating content through a tablet takes us back to the history of writing, in its foundation by the Sumerians, who, around 3.300 B.C., started using clay tablets to record texts in cuneiform writing (FISHER, 2009). It is also in the format of the Sumerian tablets that one of the oldest written records of literature is found, the *Epic of Guilgamesh*.

Today, amid all the functionalities of digital technology, reading often appears as a means for other purposes, such as reading messages in everyday communication via social networks. This functional use of reading, it is worth mentioning, was already present at the origins of writing, as the first Sumerian tablets served accounting purposes. Yet, some apps have reading – fiction or non-fiction – as their primary function. Digital textuality, however, is even more diverse than the textuality of the printed medium, as it allows the integration of verbal, visual, aural, kinetic and gestural modes of communication. When we speak of reading in the digital environment, therefore, we speak of multimodal reading, in which the written word never appears dissociated from other semiotic modes. Within this context, the format of the literary app emerges.

A literary app is a work of digital literature in app format that makes use of the material, coded, multimodal and hypermedia possibilities of mobile touchscreen devices to convey a literary work in which the participation of readers through interactivity is essential for the development of its poetics.¹ Although many literary apps are adaptations of works previously published in print, often in the form of a picturebook, only works that have characteristics of digital native literature are considered here, in the sense that their central poetic expression cannot be transmitted in another format. Thus, even when a work is an adaptation, the new textual configuration of the piece in app format promotes an original and authentic form of reading. It is a new way to experience the literary through digital media and the technological possibilities of tablets and smartphones. Given the novelty of the literary app reading experience, we are faced with a fundamental question: What are the key aspects of children’s meaning-making when reading literary apps?

The production of literary apps for children has been highlighted, for example, through international awards such as the Bologna Ragazzi Digital Awards, from the Bologna Book Fair – the largest international children’s book fair, in Italy – and digital reading in childhood is a process that is still deeply unknown,

even if it is fundamental to the development of educational practices and reading promotion today. For these reasons, the focus of this study is on the reading of literary apps in early childhood.

To answer this question, an empirical study was conducted with preschool children reading literary apps with at least one parent. The research took place at a public library in a medium-sized university town in England.

Theoretical Framework

An interdisciplinary theoretical framework based on multimodal social semiotics guided this research. It draws especially on the work of Gunther Kress and Theo van Leeuwen – both in their joint (KRESS; VAN LEEUWEN, 2001, 2006), as well as independent publications (e.g., KRESS, 2010; VAN LEEUWEN, 2005) – which, in turn, is based on the work of the linguist Michael Halliday (e.g., 1975, 1978). Multimodal social semiotics advocates the centrality of the social context in the construction of meaning: meanings are situated in a given space-time and depend on the “system of meanings that constitute the ‘reality’ of culture” (HALLIDAY, 1978, p. 123). Within a given socio-cultural context, the construction of meaning still depends on the relationships between individuals and semiotic artifacts, in this case, literary apps, in a constant iterative movement. Readers bring their repertoire, their interests and motivations to the construction of meaning, while literary apps present suggestions of meaning – a meaning potential – through their multimodal configuration. It is in the encounter between these three elements, – reader, literary text, and socio-cultural context – that meaning emerges, always anew. The multimodal aspect of social semiotics also emphasizes that written language never appears in isolation in the processes of signification, but is in constant relationship with other semiotic modes.

Based on such conceptualization of the processes of signification, this research sought to investigate meaning-making in children’s digital literary reading taking into account both the meaning suggestions proposed by the text of the literary apps, as well as the readers’ responses, within the context of shared reading with parents. Thus, text, reader, and sociocultural context were considered in the analysis of meaning-making, according to the methodology detailed below. Data analysis involved both induction and deduction: while the theoretical framework described here guided this analysis, the key events that emerged from the data promoted a reflection on the specificities of children’s construction of meaning with literary apps. From this process, the dimensions of embodiment, affect and agency emerged. They will be discussed in this article through the analysis of vignettes which are representative of the phenomenon of digital reading in early childhood as observed in this research. For the discussion of these aspects, however, new theoretical perspectives, specific to each dimension, were integrated and these will be discussed throughout the analysis. Before that, however, the research methodology is presented.

Methodology

This is a qualitative research in which case studies were conducted with six families of four-year-old children. Following the categorization of case studies proposed by Bassey (1999), this investigation is of the “theory-seeking” type, that is, it starts from the analysis of the singularity of each case to theorize digital reading in early childhood, proposing, grounded in the data and in the form of convincing arguments, “fuzzy generalizations” (p. 13). The research was approved by the ethics committee of the Faculty of Education from the University of Cambridge and conducted according to the guidelines of the British Educational Research Association (2011).

The families volunteered to participate in the study, resulting, among the child participants, in five girls and one boy. Three of these families considered themselves English, while the other three families originated from other parts of the world. All participants, adults and children, were fluent in English, the language in which the research was conducted, but children from families of foreign origin were bi or multilingual.

The research observed the shared reading between parents and children. Mothers fulfilled the role of the adult co-reader with only one exception, which will be discussed below, in which the child was accompanied by both parents in all sessions.

The situation of shared reading was chosen for the study because it is the most traditional configuration of reading in early childhood outside the context of formal education (preschool or nursery). In the UK, the numbers are quite robust, and a survey by Scholastic (2015) indicated that 78% of parents of children between 3 and 5 years old read to their child(ren) daily. Thus, it was a criterion for the selection of participants that parents had the practice of shared reading already established.

It was also considered whether the children were familiar with digital mobile technology, such as tablets and smartphones. All participating children had moderate and strongly mediated access to this technology, using it most commonly to play games and access educational content. Only one of the children had daily access to a tablet, but for a limited period of time, and this child was also the only one to have experience with digital literature in the format of literary apps. The reading of highly interactive digital literary narratives was, therefore, new to most participants.

After analyzing more than 120 apps recommended by specialized media outlets, three literary apps were selected: *The Monster at the End of This Book*, by Jon Stone and Michael Smollin (2011), published by the US-based international conglomerate of children’s media Sesame Street; *Little Red Riding Hood*, by Nosy Crow and Ed Bryan (2013), published by the British publishing house Nosy Crow; and *Hat Monkey*, by Chris Haughton (2013), published by the German startup Fox and Sheep.

Data collection involved semi-structured interviews with families, to map their reading habits and uses of technology. This information was complemented by the application of the questionnaire on printed

and digital reading habits developed by researchers Natalia Kucirkova and Karen Littleton (2016) for the non-profit organization BookTrust, based in the United Kingdom. The data collected through the questionnaire was analyzed qualitatively. The central method of data collection was the observation of the shared reading events. The observations were video recorded, ensuring a complete view of the participants – their comments, gestures, interactions – as well as the device's screen, and changes occurred in the narrative during the event.

The entire data collection process involved four or five sessions with each participant family. An initial session for the presentation of the research and familiarization of the participants with the researcher, the research location, and the recording methods was carried out. In that session, the interview took place, and the participants received the questionnaire. Having accepted to participate in the research (parents and children, separately) and signed the consent form (parents), the participants continued to the data collection phase.

At each session, participants read one of the selected apps without any interference from the researcher. In one of the sessions, they also read the print edition of *The Monster at the End of This Book* (STONE; SMOLLIN, 1971), but the comparison of versions will not be part of the discussion in this article. During the sessions, families also spontaneously read printed books from the library or other literary apps that were not part of the research but were available on the tablet. These observations were not included in the research database and were not submitted to the analysis protocol, but indirectly informed the researcher's perspective. After three reading sessions, participants were invited to a last session where they could reread the selected stories. Some participants, however, asked to reread the apps during the regular sessions.

The analysis of the data involved multiple steps, in an iterative process between the observation of the data and the delimitation of patterns, as well as the mapping of the emerging academic literature referring to digital literature in app format and its reading in early childhood. The transcription process is notably the first (or one of the first) step(s) of traditional qualitative analysis. Within a multimodal framework, however, the transcription must take into account the multimodality of the data, including systematically notes on modes other than the verbal, such as visual, aural, gestural, and so on. As this process is incredibly laborious, it is not possible to transcribe the entire database. Thus, researchers in the field of multimodality have found strategies for sampling the data, which only then go through the process of multimodal transcription. In this project, the methodological framework was initially based on Jeff Bezemer and Carey Jewitt's proposal for the multimodal analysis of video data (2010). Given the specificities of this research, adaptations were made to this protocol, resulting in the following process:

1. *Data logging*: A brief verbal description of the data, scene by scene, indicating aspects worthy of attention, raised from an initial and global view of the project.

2. *Viewing data and epistemological transcription*: repeated visualizations of the data, paying attention to the different modes and the partial transcription of the most significant episodes using the software ELAN (2015). This form of transcription served an “epistemological function” (BEZEMER, 2014). Several forms of transcription were experimented with as a way of exploring and making sense of the data.
3. *Data sampling - theoretical coding*: the iterative movement between the visualization of the data and the researcher’s engagement with the theory and the literature in the field resulted in the themes of embodiment, affect (and emotions) and agency. Next, were selected from the data the representative events regarding each theme, resulting in a first sampling strategy.
4. *Data sampling - thematic networks*: to further reduce the sample so that the number of events to go through multimodal transcription was manageable, according to the material conditions and time constraints of the research, these selected events were then organized into “thematic networks” (ATTRIDE-STIRLING, 2001), where the relationships between the events and their levels of priority were established.
5. *Final multimodal transcription*: Having selected the key events of each thematic network, these went through a second multimodal transcription process. In a first stage, a transcription was made, using the software ELAN, of all the semiotic modalities of the events, including literary works and the readers’ responses. This transcription had an epistemological function, that is, it contributed to the understanding of the phenomenon of digital reading. Finally, to meet the “rhetorical function” of the research (BEZEMER, 2014), that is, to present and discuss these events in publications and academic presentations, supporting the proposed theory, a specific transcription system, which will be presented below, was developed.

Results and discussion

To exemplify the embodied, affective and agentic dimensions of children’s meaning-making when reading literary apps, I’ll draw on two readings by the same child, Maria, of the penultimate scene of *The Monster at the End of This Book* app (henceforth, *Monster*). Maria came to the all sessions with both parents, her mother Daniela and her father José, a Portuguese family that was living in the UK for 9 months at the start of the research. Maria had very little access to digital technology, eventually playing educational games on her father’s tablet computer, but the family was interested in the potential of the medium for Maria. They were all impressed with and interested in the apps that were part of the research and Maria would often ask to read more apps in each session and to reread the apps from the previous sessions.

The first vignette refers to Maria’s first reading of the app, while the second one refers to Maria’s fifth reading of the same text. Three of these readings happened in the first session and two in the second

one. These multiple rereadings of *Monster* were not exclusive to Maria's experience in the research and other participants also read the story repeatedly, according to their own interests, which indicated children's engagement with this work.

Overview of the scene read and discussion of its meaning potential

In this story, Grover, the blue puppet character from Sesame Street, realizes that there will be a monster at the end of the book. Scared, he requests that readers do not turn the pages, so they will never get to the end and face the monster. The story, therefore, establishes a direct communication with readers. Their role, in order to continue with the story, is to contradict Grover and continue turning the pages, generating a subversive, playful game between reader and text. Grover then comes up with strategies for blocking the pages from readers, such as tying them up or building a wall, but readers can destroy these protections. The scene in question is the penultimate scene of the app. After readers have overcome all Grover's attempts to stop them from turning the pages, they get to this scene, the one that precedes the revelation of the monster.

Figure 1. Screenshot of the penultimate scene of *The Monster at The End of This Book*.



Source: © 2019 Sesame Workshop®, Sesame Street®. all characters, brands and associated designs belong to and are licensed by Sesame Workshop. All rights reserved.

The transition from the previous scene to this one shows the pile of bricks being squashed by the pages of the book. Once the new spread is open, bits of bricks, boards and ropes come out of the left margin, indicating the previous stages in the story and how Grover, unsuccessfully, tried to stop the readers. Grover rises from the bottom margin of the screen, while a sound effect emphasizes his emergence, and positions himself in a middle shot (seen from the waist up) in front of the book, facing readers directly. He has his fingers crossed in front of his body, in a begging position, which matches the words he utters: “Oh, the next page is the end of this book. And there is a Monster at the end of this book. Oh, I am so scared! Please, do not turn the page. Please. Please. Please.” As he begs, salience is given to certain aspects of his speech through the emphasis generated by his tone of voice, the movements of his body, minor visual effects, and non-diegetic sound effects. First of all, when “Monster” is pronounced with great emphasis, Grover jumps slightly and drops of sweat come out of his head, suggesting his fear and anxiety with what he believes will happen next. When saying how “scared” he is, Grover’s body recoils slightly. At every “please” he utters, Grover’s body gets bigger on the screen, in an effect that suggests getting closer to readers. Each of the “please” words appear in their own, colorful speech balloon, which again give them salience. The sound effects add tension to this crucial point in the story. Every moment of this scene is then modulated in multimodal ensembles that vary slightly in configuration. Finally, a sound of page turning entices readers to turn the page, despite Grover’s pleads.

By turning the page in this scene, readers move into the end of the book. The monster is revealed to be Grover himself, in a surprising and humorous twist, as Grover is a monster, but a “lovable, furry, old monster” (Grover’s description as it appears on the homepage of the app).

Next, two reading events involving Maria, José and Daniela are presented.

Maria, 1st reading, 4y3m, co-readers Daniela (mother) and José (father)

In the following vignette, we see Maria reading the app with her parents for the first time. The overall structure of the vignette is representative of the data more generally, although obviously each participant, child or adult, has a unique style of response and certain kinds of response are app-specific, as they happen in conversation with certain features of an app.

Figure 1. Multimodal transcription of vignette 1.

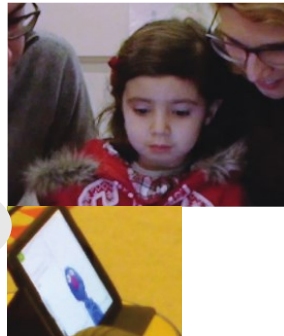
11:14.447 [01]

Maria watches Grover speak attentively, without showing any major changes in her expression. He speaks dramatically, and adds emphasis to the last word, "book".



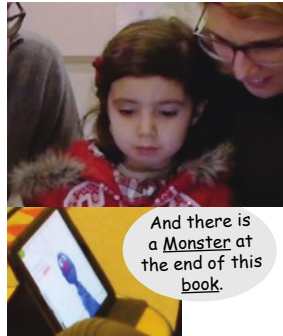
11:15.767 [02]

As he finishes the first sentence, Maria expresses a slight change of facial expression, her lips shake slightly and compress, suggesting tension and fear.



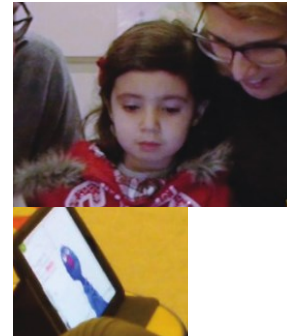
11:17.207 [03]

The story continues and Maria seems almost frozen in her tense expression. Grover adds another sentence, with emphasis on the words "Monster" and "book".



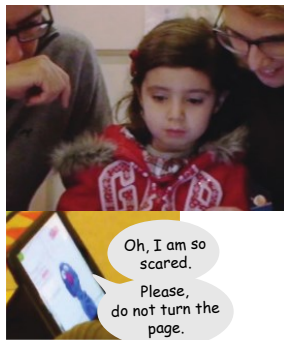
11:19.607 [04]

Maria shifts slightly as the sentence ends, raising her chin.



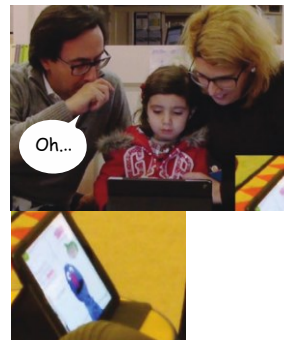
11:23.047 [05]

Grover then begs her not to turn the page and she keeps steady, moving only her gaze.



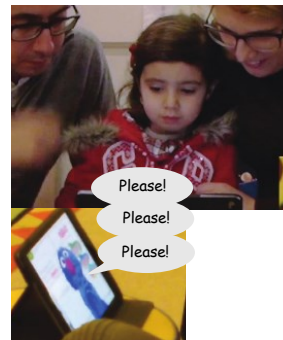
11:25.367 [06]

José makes an exclamation, reinforcing the drama of the situation.



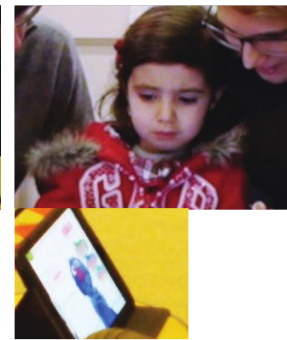
11:27.087 [07]

Grover continues begging. Maria follows with her gaze, without moving, changing her expression nor speaking.



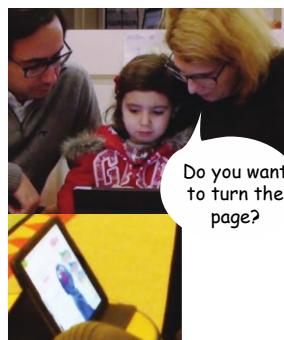
11:29.567 [08]

As he finishes, Maria frowns, pressing her eyebrows against each other and extending her lips to the right slightly.



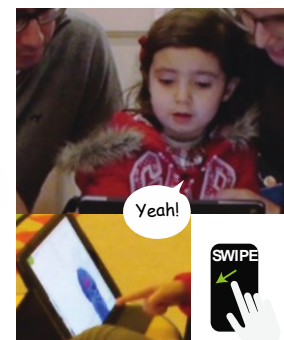
11:30.007 [09]

Aware of the tension, Daniela asks if Maria wants to turn the page.



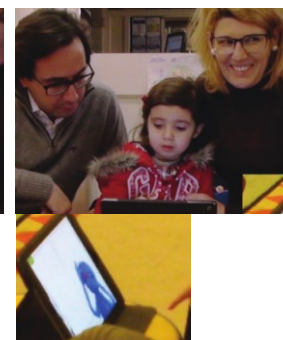
11:31.607 [10]

In a quick change of posture and in a movement towards the screen, Maria replies positively, and swipes the screen turning the page.



11:32.847 [11]

While Daniela seems to find Maria's reaction amusing and perhaps surprising, Maria looks attentively towards the screen waiting for the Monster's revelation.



Maria is sitting between both her parents, with the mother very close, almost embracing her. Her father is a slightly further away in a more relaxed position. The iPad is in front of them, at Maria's arm reach, on top of a pile of cushions. Maria looks fixedly at the screen as the scene transitions and Grover starts explaining that the end of the book is close [01]. Maria does not express her emotions dramatically, but small shifts in her facial expression indicate tension, such as a subtle trembling of her lips [02]. As Grover asks readers a final time not to turn the page, José makes a "Oh!" sound, adding to the drama of the moment [06]. Grover begs, and Maria barely moves, following the movements on the screen with her gaze

[07]. Next, still silent, Maria contracts her face, in a negative expression, possibly indicating fear [08]. Daniela seems to have felt the tension of the moment and asks Maria whether she will want to turn the page [09]. Despite her apparent paralysis during the reading, Maria suddenly is set in motion, moving her hand towards the screen and responding affirmatively, “Yeah”, she will turn the page [10]. As she does it, her lack of hesitation seems to release the tension slightly, but still she looks fixedly at the screen, waiting for the “monster” to be revealed [11]. The parents seem to be amused by this duality and perhaps somewhat surprised by Maria’s confidence in turning the page.

Maria, 5st rereading, 4y4m, co-readers Daniela (mother) and José (father)

The following vignette, on the other hand, shows a moment in the data that stands out from the standard responses seen in the dataset, as Maria seems to purposefully perform a response to the story, which she now knows well. This happened in a few other instances during the research, all rereadings of a story, but still were localized moments, rather than a regular pattern of response.

Figure 3. Multimodal transcription of vignette 2

50:07.540 [01] Maria watches Grover speak while holding her Teddy.	50:09.800 [02] When the word “monster” is pronounced, she makes a scared face and looks at her mother.	50:12.880 [03] Grover then begs her not to turn the page.	50:19.800 [04] And Maria initially agrees.	50:21.520 [05] She moves and makes the swipe movement, but without touching the screen.
				
50:24.000 [06] She says again that she is not going to do it, which surprises her mother.		50:25.760 [07] Maria then “changes her mind” and in a coordinated action she swipes and says:	50:26.600 [08] She holds her arm in the air for a while, and her parents laugh.	
				

Fonte: elaborada pela autora.

Maria is again seating in between her parents, with the iPad in front of her, and her teddy on her lap. The parents are, however, not so close to her this time. She finishes the previous scene with a wide smile, but, as Grover enters this scene, her face is quickly changed into a neutral, relaxed expression. Soon, she turns to her teddy, rearranging it on her lap [01]. As Grover says “monster”, Maria looks at her mother in the eye and makes a face that resembles fear, but seems performed and intentional rather than an authentic emotional response [02]. Her mother mimics her, making a scared, yet smiley, face back [02]. She looks back at the screen, with a neutral face, looking at Grover speaking. As he finishes begging “please, please, please” [03], Maria opens a wide smile, and says “Alright, alright” [04]. She moves her hand towards the screen and swipes but does not seem to touch the screen, doing the movement in the air [05]. Maria adds, excitedly: “Alright, I do not turn the page.” [06], while she moves her hand in the air and then brings it back closer to her body and away from the screen. “Yeah?”, asks her mother, doubtful [06]. Immediately after, she moves her hand to the screen, swiping it, while she says: “I do!” [07]. Maria keeps her raised finger straight, close to her body, [08] and makes a naughty face. [08] The parents laugh and say “Ahhh”, Daniela looking a bit disappointed. José adds emphasis to her action by saying emphatically: “Turning the page!” [08].

Embodiment and multimodal meaning-making

The scene discussed above works as an example of the multimodal nature of literary apps. They convey their narrative and suggest meanings through a careful orchestration of semiotic modes. In the case presented above, the “ecology” of the literary app is formed by signs in the verbal (written and spoken), visual (static and moving image, or the kineikonic mode (BURN, 2014)), aural modes (sound effects and again the spoken words) but also through the readers’ gestures, which activates the app through touch, or the contact of their skin with the screen. The “ecologic” metaphor proposed by David Lewis (2001) to discuss the multimodal nature of the picturebook is also useful for literary apps, because it emphasizes the interdependence of these modes in constructing the narrative and how any changes in these ecologic relationships result in changes in meaning (FREDERICO, 2017).

The fact that readers must engage their bodies through interactive moves alters the dynamics of reading in comparison to traditional (print or digitized) literary reading. In this scene, readers are only required to turn the page, an action that is already present in print readings. In other scenes, however, they must destroy Grover’s protection to be able to turn the page. Furthermore, readers could perform other interactions in this scene, such as tapping Grover, which would make him say: “I beg you, please. Pretty, pretty, pretty please”, or tap the words “Monster” or “please” and have them repeated. None of the participants, however, perhaps due to a lack of fluency in digital reading, explored these options. These are interactions with a cardinal or satellite function (SCHWEBS, 2014, following the work of BARTHES,

1977): they are not essential to the development of the story, but alter the app's discourse, affecting the reading experience. To turn the page, however, readers can perform two different gestures, taping or swiping the bottom-right corner of the screen. When taping, their gesture only partially represents the action of turning the page: readers still act towards the page and in an area of the page that is meaningfully related to the movement of turning the page. However, when readers swipe the screen, even when the gesture is not required, they are fully performing the action of turning the page, even if the effect is programmed and virtual, not a result of the friction of the finger moving the page to the left side of the book.

Thus, the interactive gesture presents two roles: the first is *activating* a change in the text, and for that, a material form of connection between reader and device is needed (usually the contact between skin and screen, but readers can also use movement, sound, and so on to activate an interaction, if it has been programmed this way); the second is the *representational* role of the interaction, or the fact that the gesture performed by readers present a role in the construction of the story. In this scene's case, the option of tapping to turn the page emphasizes the activation role of the interaction, while the swipe, emphasizes its representational role.

Just as the text in the literary app is multimodal, readers also communicate their reading responses multimodally. As seen in the vignettes, readers use their spoken language, vocalizations, gestures, facial expression, gaze, touch, proximity to communicate meanings to other people, and in this case, also to the interactive narrative, whether these meanings are captured by the device (e.g., touch on a hotspot) or not. However, the first vignette shows how verbal language, often given a prominent role in the study of human communication and also in reader-response research, did not always play a protagonist role in the shared reading events involving young children, parents and a literary app. During the reading events observed, children were especially silent during a considerable part of the time. A lot more often than not, children did not speak, but they used their gestures to communicate with the interactive narrative. In this case, few gestures were required per scene, and Maria expresses herself verbally only when prompted by her mother, who asks her a question. The second vignette, on the other hand, shows a much more playful and theatrical Maria, who makes an integrated use of gestures and verbal expression to communicate with the work and her parents.

When reading a literary app, therefore readers can conduct two types of performances or embodied intentional responses: in *interactive performances* readers use their body to participate in the narrative by activating some pre-programmed response from the text (in this case, swiping the bottom-right-hand corner), that is, they are performances with the objective of interacting with the work to generate an answer/alteration of/in the literary text; in *spontaneous performances*, readers enact a response that does not have an intention of activating the text, but which is a form of communication that is meaningful in the context of that event (e.g., when Maria threatens to turn the page but doesn't, or when she (falsely) says

she won't turn the page), that is, the text does not change with readers' actions, but the conversation between reader and work in a broader sense is affected.

Although Maria was not a child who tended to express her emotions dramatically through her facial expressions, as some of the other child participants did, the close analysis of her responses, and an analysis of her behavior across events and comparatively in the rereadings, allows us to notice how her body is an important vehicle to access her emotions. Hence, children also engage in *unintentional embodied expressions of emotion*, a third category of embodied response that differs from the previous ones in terms of intentionality. This category will be discussed in the next topic.

When readers encounter the text of a literary app in a shared reading event, therefore, their bodies are an essential aspect of the multimodal ecology of the text and of the multimodal ecology of the reader's communication or response. It is, therefore, an essential point of contact between both ecologies, through which not only the technological aspects of digital interaction depend on – as without activation there is no interactivity –, but that plays an essential semiotic (representational) role in the construction of meaning in digital literary reading.

Affect and Emotion

In Deleuze and Guattari's philosophy, inspired by the works of Spinoza, affect refers to “an ability to affect and be affected. It is a prepersonal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act.” (MASSUMI, 1987, p. xvi). If affect is ubiquitous and we affect/are affected at every moment in our exchanges with the world, literary reading involves a specific “type” of affection, because when reading literature, “one wants to be moved; emotions are central to the experience of fiction” (MAR et al., 2011, p. 822). Literature, therefore, is a semiotic artefact which is built with the intention of affecting readers emotionally.

Affect and emotions are not synonyms. Emotions are episodic, they are brief and have a beginning and an end, a period in which “specific feelings are experienced, and specific changes in one's body and behavior becomes apparent.” (COLOMBETTI, 2014, p. 25). Therefore, in the observation of children's transactions with literary apps, it is expected that these emotional episodes become apparent, as seen in the vignettes above. Furthermore, affect involves two levels, the level of *intensities*, that is “a nonconscious, never-to-conscious autonomic remainder” (Massumi, 1995, p. 85), and the level of *qualification*, which is conscious and depends on readers' signification processes. Emotion depends on the articulation of both levels, in a “qualified intensity” (p. 88), in which readers evaluate or “appraise” (COLOMBETTI, 2014) such intensities according to their repertoire and expectations, leading to the experience of a certain feeling.

While affecting and being affected are simultaneous in phenomenological terms, for analytical

purposes, the analysis will start with how the narrative affects readers, being the object of emotional episodes. Next, the affects generated by readers will be considered.

In *Monster*, emotion is not only an effect the text can provoke on readers, but is one of the central themes of the narrative: the fact that Grover is scared of the supposed monster at the end of the book is what motivates him to ask readers not to turn the page. In contrast, readers are expected to be brave or at least to manage their own fears to continue turning the pages and get to the end of the book. The scene in question emphasizes Grover's emotional state of fear, which reaches its peak at this point in the text, which precedes the revelation of the monster. His emotion is represented synergistically and symmetrically across the different modes that construct the multimodal narrative. Thus, the intensities that resonate from the story are experienced through different sensory channels – visual for images and writing, aural for sound effects, music and speech, touch and movement/gesture for interactivity. Each modality seems to involve different processes to qualify the intensities they generate, but from the transition from intensity to qualified intensity, they are unified in a single multimodal meaning.

In the scene in question, several markers indicate the emotion of fear experienced by Grover, however, given the nature of these semiotic modes, these representations are imprecise. This is the case with visual text, in which readers can “read” the emotion through Grover's facial and body expressions. Nikolajeva (2014) highlights that the visual representation of emotions is the most “natural” to read, as this is how we identify emotional states in social interactions. However, due to Grover's stylized representation, some important markers in expressing the feeling of fear are not present. According to Cordaro (2014), for instance, the facial markers of fear would be the raised and contracted eyebrows and the lips stretched, but Grover has neither eyebrows nor lips, and the length of his mouth is fixed. However, other important markers are highlighted in Grover, such as an open mouth, and body signs such as sweating and tremor (DARWIN, 1998). He also has his eyes wide open, which seems to partially make up for the lack of eyebrows, generating an association with the emotion of fright/surprise. Grover's tone of voice also expresses his feeling of despair and adds emphasis to the words “book”, “Monster” and “fear”, as well as “please”. Finally, the sound effects emphasize keywords and enhance the scene's fearful atmosphere. Verbal language, however, seems to play a central role in unifying these multiple cues through a precise label: Grover says, “Oh, I'm so scared.”

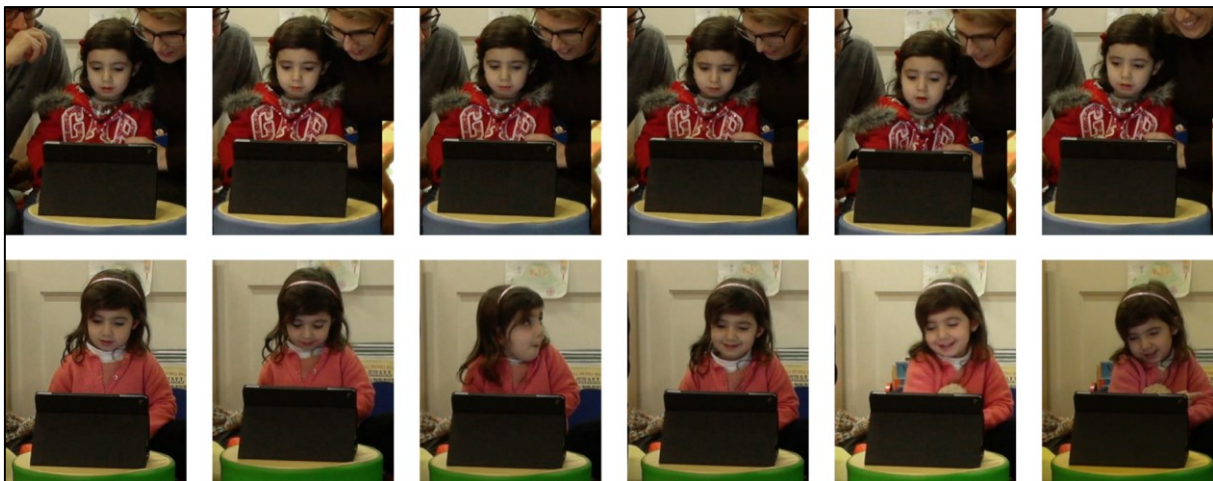
From the perspective of child readers, the recognition of facial expressions develops with age, and four-year-olds are still in the early stages such development. Facial expressions of fear, for example, are more difficult to identify for children in early childhood than simple positive or negative emotions, such as sadness (FELDMAN; TYLER, 2006). Thus, the juxtaposition of markers representing fear in different modalities and the confirmation, through verbal language, that the emotion in question is fear, is important for the communication of this story whose audience is young children. Such an association between names

of emotions and their multimodal representations seems to effectively support, as suggested by Nikolajeva, “increasing novice readers’ emotional intelligence” (2014, p. 95).

As a shared reading event, further moments of intensity are added by the parents, and it was not uncommon that parent’s responses directly related to the experience of emotion. In this scene, this is observed by the father’s exclamation: “Oh!”, which indicates his sympathy for the character and validates Grover’s expression of fear. José, in his role as co-reader, was especially interested in adding emotional emphasis to the story, at times reinforcing the atmosphere of fear and suspense, and at other times, like this one, modulating the response from a readers’ perspective, indicating sympathy towards the character.

Although Maria does not necessarily express her emotions explicitly, as seen in the first vignette, through the microanalysis of her facial and body expressions, we can identify moments when she responds emotionally, albeit in a discreet way, to certain emotional intensities. First, the fact that Maria is mostly static is already an indication of the feeling of fear (TOMKINS, 2008). When we compare the two vignettes moment-by-moment, it is visible that Maria experienced tension in the first reading, in contrast to the last, in which she seems relaxed (see Figure 4, below). In addition, in the first vignette, her body responds at times with slight movements that suggest emotion (see scenes [02], [04] and [08]). The fact that these responses appear after the end of the sentences seems to confirm that the various multimodal intensities are transformed into a unit of meaning following the verbal text. When a sentence ends and, therefore, a unit is formed and interpreted, Maria’s body responds with small shifts, indicating an emotional response. As the utterance of the verbal text of the scene ends, concluding a greater unit of meaning, a more complete expression of fear and apprehension on the part of Maria is observed. These observations are in line with Massumi’s (1995) propositions discussed earlier, that emotion depends on the transformation of an intensity, through semiosis, into a qualified intensity.

Figure 4 – Sequence of screenshots comparing Maria’s emotional responses to the same moments in the scene, in the first and second vignettes.



Fonte: elaborada pela autora.

These autonomous expressions indicate an emotional connection between Grover and Maria, and yet, in the first vignette, Maria doesn't hesitate to turn the page after Grover begs her not to. Thus, although Maria experiences the fear suggested by the narrative through these multiple intensities that gain meaning through the multimodal text, her "ability to act", that is, her agency, remains untouched, a topic which will be discussed in the next section.

While the first vignette highlights the intensities generated by the text and experienced by the reader, the second vignette highlights the intensities generated by the reader. As Maria's fifth reading of the app, she seems to have already processed and internalized the intensities generated by the text. Maria also already knows that Grover is the monster. However, her responses to the text give an impression that the intensities generated by the story are even more potent than those of the first reading, because Maria responds with greater frequency and intensity (although it is clear that she does not experience fear in this rereading of the scene). Yet, in this case, Maria seems to be acting out her responses to the narrative. The expressions of emotion, comments and vocalizations, as well as interactions, are intensities generated by the reader, and she plays with these elements in a performance. In addition, Maria seems to be integrating into a "montage" a broader set of responses that she experienced during the various previous readings.

Regarding the performance of her emotional expressions, when the word "monster" is pronounced, matched with sound and visual effects, Maria faces her mother and enacts a scared facial expression. The mother responds with a similar, mirrored facial expression. Such expression is a lot more dramatic and overt than any other autonomous expression of fear that Maria communicated during her previous readings of the app, as the first vignette exemplifies. It is also not accidental that Maria looks at her mother, rather than at her father, when she performs this emotion. Firstly, Daniela tended to be quite expressive during the shared reading sessions, often highlighting the emotional tone of the story also with exaggerated facial expressions, and looking at Maria at moments of emotional tension, attentive to her responses and offering emotional support. Thus, the situation of shared reading seems to enrich the process of learning emotions through literary reading, due to the emphasis and validation of emotional content carried out by the adult co-readers.

Since, in phenomenological terms, readers are continually affecting the text while being affected by it, the interaction causes a form of intensity that the digital literary work can "perceive". The interaction is in accordance with the "perceptual channel" of the device, the touchscreen, and thus the intensity can be qualified/interpreted by the software, generating a textual response. It is a moment when the intensities generated by readers, in relation to the text, become significant in this coded work of literature, since the work is programmed to "perceive" these intensities. However, other forms of reader-generated affect cannot be "perceived" by the app, because they were not programmed for that.

The interaction can also be, depending on the context of the literary work, a channel for readers to

affect the fictional world emotionally. In *Monster*, with each turn of the virtual pages, readers provoke Grover progressively, causing his fear of a monster, which he believes closer and closer, to escalate. Thus, the interaction can generate a chain of emotional affect, because once a character is affected and demonstrates an emotional reaction, readers tend to be affected once more by the character's emotions. In the second vignette, Maria performs a threat of non-interaction and as well as the interaction itself. She plays with such dynamic and it seems that, for her, in the context of shared reading, the fact that part of her responses is not captured by the app is irrelevant.

While the work has limited sensorial channels, readers have a complex sensorial system. Thus, when interacting with the touchscreen, readers are also affected. The experience of touch, as it is not part of the story's process of signification, seems to be limited to the level of intensities and never reach a level of qualification or semiosis. However, simultaneously, the constant need for change between states of touching (interaction) and not-touching the screen brings out the intensities generated by the tactile sense during reading. The texture of the screen, its temperature, the duration of the physical contact, all of these elements are part of the digital reading experience, but they do not necessarily come to be consciously processed and transformed into meanings. Other aspects of digital textuality also inform the quality of this literary experience and seem to inform our reading preferences, although they do not always reach the level of qualification. For example, the fact that digital works are intangible, that is, that they are independent of the medium in which they are read, and that they are volatile, appearing and disappearing before our eyes, without leaving any material trace of their existence (MANGEN, 2008), are aspects of digital reading that do not normally influence the semiosis of a narrative, but result in a phenomenological experience different from that observed in the reading of printed, tangible and stable materials.

Agency

The concept of agency is complex and multifaceted, being used in different disciplines with slightly different approaches. Agency refers to the individual's ability to act in the world, including their actions – and cognition here also seen as an action – in the reading process and towards the fictional world. This capacity, however, is always negotiated, as the world imposes limitations on the individual, limitations imposed by other individuals and also by the material and semiotic elements available (BEZEMER; KRESS, 2016).

The negotiation of agency between reader and text is a central aspect of *Monster*. Readers are constantly empowered by several aspects of the story, but at the heart of it lies the metafictional theme, which highlights readers' power over the fictional narrative through the act of turning the page. Throughout this narrative, Grover exercises his agency in different ways: first, simply asking readers not to turn the page, and then creating elaborate obstacles. Readers are portrayed in the narrative as “strong”, as someone who

is not afraid. When interacting with the narrative and turning the pages, readers have their power in relation to the fictional universe reiterated. In this scene, Grover is the most vulnerable he has ever been, humiliated by his repeated defeats, and his last resource is to beg, counting on readers' leniency².

The acceptance, by readers, of the fictional construction of a strong and capable implied reader, who is not afraid of monsters, obviously depends on the personal and subjective worlds of each child, on how they manage their own fears and on their ability to distance themselves from the fictional world in which they are immersed, aspects still under development in early childhood (WEISBERG, 2013). In the observed reading events, these textual suggestions proposing an agentive implied reader seemed to be accepted by the children and only one child hesitated to turn the page on the scene in question. Such empowerment does not mean that children have not experienced fear while reading, as discussed earlier. There are multiple signs in the first reading event indicating that Maria was afraid; however, this emotion did not result in a loss of agency, and other participants acted similarly. The act of turning the page moves readers from the emotional state motivated by the narrative and puts them back in control, but the underlying tension and the expectation of facing the monster remain.

Although it is noticeable in the data that the participants felt agentive in relation to the text, remains the discussion around the fact that readers' actual possibilities of participation in the work are, in the end, limited and shaped by the design of the narrative. Hence, we can discuss whether there is an agency paradox in interactive literary reading. All interactions with the work are designed in advance and lead to the same result. Readers are expected to act in a certain way so that the narrative can unfold. Readers must turn the page and, if they don't, the element of surprise that is key to the narrative is not revealed. Only one story, with slight discourse variations, is possible, or no story at all.³ Thus, the existence of a real choice from the readers' point of view can be questioned.

Research on game studies has discussed the concept of agency in interactive narratives and highlights how important it is, in order to promote readers' sense of agency, that their (inter)actions are meaningful in the context of the narrative (e.g., TANENBAUM; TANENBAUM, 2010; WARDRIP-FRUIIN et al., 2009). The tight integration of readers actions into meaningfully building up story in *Monster* helps explaining children's empowered responses when reading this narrative. Following the Tanenbaums' (2010) definition of agency as a "commitment to meaning", readers can be said to remain agentive despite the limited framework of the app because their actions, even if restricted, are deeply meaningful. The act of turning the page has a causal function in the course of the story, affecting the character directly, who, as seen, responds emotionally with intensified fear. Furthermore, it must be taken into account that, from a social semiotics perspective, "agency is always constrained" (BEZEMER; KRESS, 2016, p. 133). Thus, we have that the limitations of the interactive narrative design cannot be considered impediments to the readers' agency, even though, of course, they contribute to shape, through these restrictions, their

participation, and the meanings that arise.

As discussed, in the second vignette, Maria's fifth rereading of the story, it is visible how much more relaxed she is. Unlike the first reading, Maria acts playfully and dramatically. Already knowing who is the "monster" at the end of the book, and certain that there is no reason to fear, Maria subverts the story on several levels. First, Maria intentionally enacts a performance of her own response to the story, exaggerating the expression of fear, and recognizing that, although she is not afraid now, being afraid is an important aspect of the aesthetic experience of this story. Maria's two actions – the first, just a threat, since she doesn't touch the screen, and the second, when she actually touches the glass and activates the page turning – have a remarkable dramatic emphasis. After turning the page, Maria keeps her finger raised, with her arm crossed over her body, which once more indicates a subversive intentionality. Her performance also includes direct references to the narrative when she chooses the expression "Alright, alright", used by Grover a few pages earlier, to communicate back to the character.

The concept of design, as suggested by the New London Group (1996), seems to be relevant for interpreting this vignette, and explains Maria's agentic attitude. Grover's multimodal construction in this app shows him as a fidgety and stressed out character whose expression is very dramatic. This form of representation can be seen as an "available design" (p. 20), at Maria's disposal in the construction of her performance. Her performance, which incorporates elements of the narrative, is therefore a "redesign" (p. 22) of this narrative, in which she is using the available designs to create new meanings. In these new meanings, she suggests not turning the page, which would indicate alignment with Grover's request, only to, at the next moment, "change her mind" and turn the page. The result of this performance is the "redesigned" (p. 23), in which Maria changes her position in relation to the narrative showing that she is, in fact, in control. She reaffirms her identity as an agentic reader, despite the narrative's effort to guide readers towards a certain direction and make them (inter) act in a certain way.

This vignette brings to the fore another dimension of readers' agency in reading literary apps: the fact that the performance of reading constitutes another layer of their experience of agency. This performance is owned by readers and manifested through their body, permitting a momentary loosening of the constraints imposed by the story's design. Despite the increased freedom to use one own's body and voice in the redesign, readers are still constrained because the performed redesign needs to be coherent with the story, maintaining the "commitment to meaning" (TANENBAUM; TANENBAUM, 2010). Readers must remain compromised, and therefore operate within the framework of the story, although freed from the app design constraints that request that they act in pre-defined ways.

Conclusion

This article contributes to educational research by presenting and discussing, through the empirical

investigation of shared reading in early childhood, some essential perspectives for understanding digital literary reading, in general, and literary app reading, in particular. Thus, it was argued that digital literary reading in early childhood is embodied, affective and agentive. The reading of literary apps depends on the participation of readers bodies so that its interactive potential unfolds, but readers also make use of their own bodies as a way of expressing their emotions and agency, in addition to using it to share these experiences with the adult co-reader. Readers' bodies also take part in the process of representing the narrative, through interactive gestures, being therefore fundamental in making meaning with the text.

Affect permeates all aspects of digital reading, and one of the most explicit results of this process is the emergence of emotional episodes, in which readers demonstrate, through their facial and body expressions, how the intensities produced by the multimodal and interactive narrative move them. Adult co-readers are also sources of affect and contribute to the emotional experience of digital reading, expanding or confirming the emotional contents of the works. On the other hand, readers generate affect towards the text, both in the form of interactivity, or affects that can be interpreted by the narrative, and as affects that are not perceived by the device, in the spontaneous performances. As a way of subverting the narrative and for the purposes of play, readers can even simulate their emotional state. Interactivity, in turn, highlights the tactile layer of the digital reading experience, in which fingers and hands are constantly invited to touch the screen, but these affects tend to remain at the preconscious level, even though they interfere with the quality of the reading experience.

Agency is also a key concept in meaning-making. In digital reading, it gains prominence given the possibility of readers' participation through interaction, but restricted interactive designs raise the possibility of an agency paradox in interactive reading. The observation of preschool children's digital literary reading, however, reveals that, regardless of design limitations, readers experience agency when interactions are meaningful in the context of the work. It also shows that child readers have the ability to identify such limitations and subvert them, through play and performance, therefore living this agency in a multifaceted way.

Knowing the characteristics and processes of digital literary reading is crucial for the development of literary education and multiliteracies, in a context of digital ubiquity in the lives of children and adults. Literary apps bring to light a new participatory and agentive reading paradigm modeling to young readers the poetic possibilities of digital technology. Identifying and understanding the embodied, affective and agentive dimensions of digital reading is also an essential step towards the development of a new pedagogy of reading that promotes the innovative aesthetic experience of literary apps, and also provides subsidies for child readers to develop a critical view of these works and their mechanisms of meaning suggestion. Thus, future steps in research should include the application of this theoretical framework in a pedagogy of reading and literature, and the confirmation of its effectiveness in literary education.

Notas

¹ For a review of the literature and a discussion on the definition of the literary app, see Frederico (2018).

² For a detailed analysis of the semiotic potential of this narrative through a multimodal social semiotics framework, see Frederico (2017).

³ Mackey (2016) reported a case in which the child refused to contradict Grover when reading this app, highlighting that this option, although unlikely in most cases, is always available to the reader.

References

- APLICATIVO. In: **Grande Dicionário Houaiss**, s.d. Available at: <https://houaiss.uol.com.br>. Access by: 9 jan. 2020.
- ATTRIDE-STIRLING, J. Thematic networks: An analytic tool for qualitative research. **Qualitative Research**, v. 1, n. 3, p. 385–405, 2001.
- BARTHES, R. Introduction to the structural analysis of narrative. In: **Image, Music, Text**. London: Fontana Press, 1977.
- BASSEY, M. **Case study research in educational settings**. Philadelphia; Buckingham: Open University Press, 1999.
- BERA - BRITISH EDUCATIONAL RESEARCH ASSOCIATION. **Ethical Guidelines for Educational Research**. London: British Educational Research Association, 2011.
- BEZEMER, J. Multimodal transcription: A case study. In: NORRIS, S.; MAIER, C. D. (Eds.). **Interactions, images and texts: A reader in multimodality**. Boston; Berlin: De Gruyter Mouton, 2014, p. 155–170.
- BEZEMER, J.; JEWITT, C. Multimodal analysis: Key issues. In: LITOSSELITI, L. (Ed.). **Research methods in linguistics**. London: Continuum, 2010, p. 180–197.
- BEZEMER, J., & KRESS, G. **Multimodality, learning and communication: A social semiotic frame**. Abingdon, Oxon; New York, NY: Routledge, 2016
- BURN, A. The kineikonic mode: Towards a multimodal approach to image-media. In: JEWITT, C. (Ed.). **The Routledge handbook of multimodal analysis**. London, UK: Routledge, 2014, p. 375–385.
- COLOMBETTI, G. **The feeling body: affective science meets the enactive mind**. Cambridge, Mass.; London: The MIT Press, 2014.
- CORDARO, D. T. **Universals and Cultural Variations in Emotional Expression**. 2014. Thesis (PhD in Psychology)-University of California at Berkeley, Berkeley, USA, 2014.
- DARWIN, C. **The expression of the emotions in man and animals**. 3rd. ed. Oxford; New York: Oxford University Press, 1998.
- FELDMAN, R. S.; TYLER, J. M. Factoring in age: Nonverbal communication across the life span. In: MANUSOV, V.; PATTERSON, M. L. (Eds.). **The SAGE Handbook of Nonverbal Communication**. Thousand Oaks: SAGE Publications, 2006, p. 181–201.
- FISCHER, S. R. **História da escrita**. São Paulo: Editora UNESP, 2009.

- FOGEL, A., DEDO, J. Y., MESSINGER, D. K., DICKSON, L., MATUSOV, E., & HOLT, S. A. Social process theory of emotion: A dynamic systems approach. **Social Development**, v. 1, n. 2, p. 122-142, 1992.
- FREDERICO, A. Children making meaning with story apps: A 4-year-old encounter with *The Monster at the End of This Book*. **Paradoxa**, v. 29, p. 43–64, 2017.
- FREDERICO, Aline. **Embodiment and agency in digital reading: Preschoolers making meaning with literary apps**. Thesis (PhD in Education and Children's Literature)-University of Cambridge, Cambridge, UK. DOI: 10.17863/CAM.31007.
- HALLIDAY, M. A. K. **Learning how to mean: Explorations in the development of language**. London: Edward Arnold, 1975.
- HALLIDAY, M. A. K. **Language as social semiotic: The social interpretation of language and meaning**. London: Edward Arnold, 1978.
- HAUGHTON, C. **Hat Monkey**. App available at: <https://itunes.apple.com>. Fox and Sheep, 2013.
- KRESS, G. **Multimodality: A social semiotic approach to contemporary communication**. New York; London: Routledge, 2010.
- KRESS, G.; VAN LEEUWEN, T. **Multimodal discourse: The modes and media of contemporary communication**. London: Arnold, 2001.
- KRESS, G.; VAN LEEUWEN, T. **Reading images: The grammar of visual design**. 2nd. ed. Abingdon, Oxon; New York: Routledge, 2006.
- KUCIRKOVA, N.; LITTLETON, K. **The digital reading habits of children: A National survey of parents' perceptions of and practices in relation to children's reading for pleasure with print and digital books**. Book Trust. Available at: https://www.booktrust.org.uk/globalassets/resources/research/digital_reading_survey-final-report-8.2.16.pdf Access by: 30 jun. 2019.
- ELAN. Versão 4.9.4. Nijmegen, Holanda: The Language Archive/Max Planck Institute for Psycholinguistics, 2015. Software available at: <https://tla.mpi.nl/tools/tla-tools/elan/>
- LEWIS, D. *Reading contemporary picturebooks: Picturing text*. New York; London: Routledge, 2001.
- MACKEY, M. Digital picturebooks. In: ARIZPE, E.; STYLES, M. (Eds.). **Children reading picturebooks: Interpreting visual texts**. 2nd. ed. London; New York: Routledge, 2016, p. 169-179.
- MANGEN, A. Hypertext fiction reading: Haptics and immersion. **Journal of Research in Reading**, v. 31, n. 4, p. 404–419, 2008.
- MANGEN, A.; VAN DER WEEL, A. Why don't we read hypertext novels? **Convergence: The International Journal of Research into New Media Technologies**, v. 23, n. 2, p. 166–181, 2017.
- MAR, R. A. et al. Emotion and narrative fiction: Interactive influences before, during, and after reading. **Cognition & Emotion**, v. 25, n. 5, p. 818–833, 2011.
- MASSUMI, B. Notes on the Translation and Acknowledgments. In: DELEUZE, G.; GUATTARI, F. (Eds.). **A Thousand Plateaus: Capitalism and Schizophrenia**. Minneapolis: University of Minnesota Press, 1987.

MASSUMI, B. The Autonomy of Affect. **Cultural Critique**, n. 31, p. 83–109, 1995.

NEW LONDON GROUP. A pedagogy of multiliteracies: Designing social futures. **Harvard Educational Review**, v. 66, n. 1, p. 60–92, 1996.

NIKOLAJEVA, M. *Reading for learning: Cognitive approaches to children's literature*. Amsterdam; Philadelphia: John Benjamins Publishing Company, 2014.

NOSY CROW. *Little Red Riding Hood*. App available at: <https://itunes.apple.com>. Nosy Crow, 2013.

SCHOLASTIC. **Kids and family reading report: United Kingdom**. Available at: <https://images.scholastic.co.uk/assets/a/3f/36/kfrr-uk-fnl-11-1423200.pdf> Access by: 30 jun. 2019.

SCHWEBS, T. Affordances of an app: A reading of *The Fantastic Flying Books of Mr. Morris Lessmore*. **Nordic Journal of ChildLit Aesthetics**, v. 5, 2014.

STONE, J.; SMOLLIN, M. **The monster at the end of this book**. New York: Golden Books, 1971.

STONE, J.; SMOLLIN, M. **The monster at the end of this book**. App Available at: <https://itunes.apple.com>. Sesame Workshop, 2011.

TANENBAUM, K.; TANENBAUM, J. Agency as commitment to meaning: Communicative competence in games. **Digital Creativity**, v. 21, n. 1, p. 11–17, 2010.

TOMKINS, S. S. **Affect Imagery Consciousness: The Complete Edition**. New York: Springer Publishing Company.

VAN LEEUWEN, T. **Introducing social semiotics**. London: Routledge, 2005.

WEISBERG, D. S. Distinguishing Imagination from Reality. In: TAYLOR, M. (Ed.). **The Oxford Handbook of the Development of Imagination**. Oxford, New York: Oxford University Press, 2013, p. 75–93.

WARDROP-FRUIIN, N. et al. Agency reconsidered. In: **Breaking New Ground: Innovation in Games, Play, Practice and Theory. Proceedings of DiGRA 2009**. 1-4 set. 2009, West London, UK.