

## **The challenges to plan and develop pedagogical practices involving digital written culture in childhood education**

Mônica Daisy Vieira Araújo  
Universidade Federal de Minas Gerais  
Rua Flor de Esparódia, 51/802 Ouro Preto,  
Belo Horizonte/ Minas Gerais – Brasil CEP: 30340-050  
mdaisy@fae.ufmg.br

Isabel Cristina Alves da Silva Frade  
Universidade Federal de Minas Gerais  
Rua pioneiros da Paz, 252 Santa Amélia,  
Belo Horizonte/ Minas Gerais – Brasil CEP: 31555-320  
icrisfrade@gmail.com

Julianna Silva Glória  
Pesquisadora do CEALE  
Rua Israel Pinheiro, 777/101 Santos Dumont,  
Governador Valadares/ Minas Gerais – Brasil CEP 35020-220  
juliannasilvagloria@yahoo.com.br

## ***Abstract***

Nowadays children are part of the digital culture (Cassany, 2002), using its supports and involving themselves in different uses of digital written culture (Chartier, 2011, 2016). Are teachers considering these uses in pre-schools? How can we create teaching proposals that attend the learning conditions of young children? How do children deal with the devices, languages, and the particular uses of digital written culture? This text aims to reflect on the processes to incorporate digital technologies in the development of pedagogical activities of preschool teachers from two public schools in Brazil. The data was collected during a research done with four teachers of four to five-year-old children. The activities proposed were developed through a collaboration of the researchers and the teachers, considering their teaching demands and the children's development. The results show that the teachers started to notice the importance of using digital technologies in the processes of appreciation of written culture. On the other hand, children are stimulated to become authors and to understand the digital support as one more instrument to think and interact with society.

**Key words:** digital written culture, childhood education, teacher training.

## Introduction

Digital technologies changed the practices of written culture that were confined to the reading and writing developed by hand or on a printed support (Cassany, 2002) and these changes have reverberated on the broad use of semiotic resources, considering that the verbal resources were previously more used (Kress, 2003). The transformations of textual supports led to different ways to appropriate the written culture and should have also provoked changes in teaching, as it inaugurates new textual genres, gestures and behaviours of reading and writing (Chartier, 2011). Anne-Marie Chartier (2016) points to the need of considering reading in its historic perspective so we can analyze how different texts and forms to read are related to the offer of texts and their production/reproduction. In this context, it is important to know how schools, especially preschools, are dealing with those changes that, according to Chartier (2002), are simultaneously a revolution on the production techniques, as well as on the ways to read and write, and their supports. In Brazil, it is still recent the right to children's education. Its obligation since the age of 4 years old had led to a series of debates on the relation between childhood and schooling (Luiz, Marchetti & Gomes, 2016) In this context, the discussion in the country around the experiences involving written culture, since preschool, has been tense, as there is the fear of literacy anticipation (Brandão & Leal, 2011). In the text of the Brazilian Common Curriculum Nacional Base for childhood education (Ministério da Educação [MEC], 2017), the curriculum is organized around 'fields of experiences', in one of them, called "Listening, speaking, reasoning, and imagining", some objectives involve the handling of supports such as books, magazines, and tablets, and the recognition and manipulation of different textual genres and their uses. They also highlighted in the document the diversity of languages and the orality aspects that should be emphasized in childhood education. Therefore, the polemic around the curriculum for childhood education is centered much more in the content and the fear for a premature literacy (Correa, 2010; Luiz, Marchetti, & Gomes, 2016; Albuquerque & Leite, 2016) than the supports used to insert the children in the literate world. However, the debate on the relation that young children can establish with written digital culture in a school situation is still new in Brazil (Santos & Braga, 2012). Therefore, we need researches that intersect childhood, and the uses and effects of digital technologies.

We understand digital written culture as the practices, habits, values, and behaviors, related to reading and writing in digital support, through different digital interfaces (Cassany, 2002). There are specific textual genres of this culture, such as email, chat, memes, tweets, and also literature, which has appropriated itself of multimodal resources made available by digital technology (Kress & Bezemer, 2009). This new type of literature

has experimented with languages and semiotic resources that go beyond the verbal and the image and, as they are interactive (Costa, 2003) they demand an active participation of the reader. In digital literature, the process of creation uses, since its origin and conceptualization, the available ways and resources of the digital culture (Hayles, 2009; Torres, 2004). Another type of work, considered a remediation (Bolter & Grusin, 2000) of printed works, called digitalized literature, is created, in general, to be reproduced in paper, but can also be read on the screen. On both types of work, see different levels of multimodality and interaction. These reading and writing possibilities require types of knowledge from the printed written culture and also new types of knowledge, so that the child can answer the demands of digital written culture.

This article aims to reflect on the process to incorporate digital technologies through a proposal of in-service teacher training and the development of reading and writing activities of preschool teachers in two Brazilian public schools. These activities revolved around the valorization and understanding of digital written culture by children between the ages of 3 and 5 and their teachers and the experimentation of various resources, through the pedagogical uses of computers, tablets, cell phones, video cameras, apps, software programs, and the Internet.

### **In-service teacher training and activity planning**

Currently, there is not in Brazil a national policy for in-service teacher training that allows a reflection and action around the use of digital technologies and the Internet in schools and for very young children. This new reading and writing support demand a reorganization of teachers' actions regarding written culture (Glória, 2011; Glória & Frade, 2015; Frade, Glória, Bicalho, Araújo & Garcia, 2018). We see a mismatch between the teachers' belief that they should wait for the children to read and write to develop practices involving digital written culture (Araújo, 2013) and the early use of digital mobile devices by children. In Brazil, 60% of children between 4 and 6 years old use their parents' smartphones and 22% of them have their own smartphone (Panorama Mobile Time/Opinion Box, 2017).

The teachers should understand that there is no need of prerequisites, such as know how to read and write, to develop practices of digital reading and writing, as well as to know the pedagogical possibilities to experience those practices with young children. This could be better developed in the pre-service training, but digital literacy is a very recent theme in the curricula of the teaching majors in Brazilian universities. In a research developed in Australia, Thorpe et al. (2015) point that preschool teachers did not feel at ease to use digital technologies and the internet with young children in the classroom. A similar result was found

with teachers who participated in our research before we started the in-service training, every fortnight, in the school they taught. Before the research, they reported that the planning of the activities done in the computer lab was done by the computer teachers and they only helped them to put into practice. The testimony of a teacher after the training is very clear: “in the beginning I was a person, you know...more insecure. I depended more on others opinions [...] we have never thought about this. About teaching reading and writing with digital technology, you know!”. It is through pre and in-service teacher training that we produce a reflection on the new pedagogical practices with digital written culture (Thorpe et al., 2015), on the reorganization of times and spaces, the concept of learning that allows children to build knowledge on digital culture, and the new roles played by teachers and students that use digital support.

### **Methodology**

Answering these challenges and aiming to investigate the teaching of reading and writing with digital technologies and the internet, we proposed an intervention research in two public preschools in Brazil, whose methodology was based on the planning of activities to be developed with children between 4 and 5 years old in the computer lab, using the content to be studied with their classes, and a work of data analysis with the teachers. The research with the for teachers (two with 4-year-old students, and two with five-year old ones) took place in different schools and cities, one in a big metropolis and another in a city in the countryside. Even though these institutions are part of the public education system, they have specific education secretaries and their own teaching proposals. Therefore, from a qualitative research perspective, we could collect pertinent and significant data that pointed to several analyses; among those we chose a sample to be presented in this article. Weekly, the researchers and four teachers who were participating in the research (two in each class) studied subjects related to written digital culture and planned activities for four classes of children between the ages of 4 and 5 years old in a computer lab, connected to the activities in the regular classroom. We created activities using different genres and digital environments, aiming to stimulate a greater insertion of children in written culture and the reflection on the alphabetic written system of Portuguese. The planning took into consideration the development and demand of the children, besides allowing significant experiences of collaboration in the building of knowledge on the social uses of digital written culture, developing also the sense of ethics, and learning Internet safety. The literacy events that took place in the computer lab were / recorded and analysed by the teachers, during a reflection moment. We tried to get closer to the teachers to promote a sense of belonging to

the research team. This methodological decision has positively affected the procedures as we had the freedom to present, to the school, the activities made by the participant teachers, as well as discuss individually with them the development of those activities so as to improve them throughout the research. The scientific procedures used to collect data were: observation, field notes, class recording, interviews with the teachers and some students. All procedures followed the ethical standards of research, following the guidelines of the Ethics Committee of *Universidade Federal de Minas Gerais*.

We noticed that, during this process, the teachers started to understand the computer lab as another teaching environment of certain uses of written culture. As the digital devices are not in the classroom, they have also understood the need to integrate the pedagogical actions of both teaching environments. We observed the development of teachers' autonomy in planning and executing the activities. By the end of the research, the teachers were the ones helping the researchers. As we can see in the final interview with Dayse, a teacher of 4-year-old children:

*[...] I didn't consider myself a source of research, but as a researcher. As I was searching the resources I would use, I could see at the kids what they wanted to learn and I was open to a real liberation, you know, of the resources that I thought were the only ones. It was as if a whole array was open to me and I could choose these options on it and I knew that behind this array, beyond it, they would be more.*

The protagonism due to the research actions shows that the proposal of an in-service and in-site training, based on planning and analysing their practices anchored by theoretical studies, allows a professional development based on action/reflection/action (Schön, 2000).

## Practices involving digital written culture in Childhood

In this section, we analyze two literacy events: the first of digital and digitized literature reading in the city of Belo Horizonte, and the second, the production of an oral text, developed in a school in the city of Governador Valadares.

### *The reading of digital and digitized literature*

The activity described below dealt with digital and digitalized literature works, collectively read through a Datashow, with five-year old children. The first work was *Aventura nas Alturas*, by Christiane Àvila, which is part of the archive of digitized literary works on the website Escola Games . So as all children could follow the text, the teacher would click in “read it to me” and the children could follow the reading through the voice of the narrator and an orange highlight in every page read. To change the page the teacher would click on an arrow and the screen would automatically go to the next page.

After reading in the website, the children read the Spanish work of digital literature *Bla Bla*, by Vicent Morisset , created with moving images, sounds, and few verbal resources in Spanish, which appeared only in the subheadings of the 5-part work. These characteristics allowed children, who do know the alphabetic written system and Spanish, to read. To do so, the kids needed to click on the character and other elements that would appear during the story. As it is highly interactive, it demands an active participation of the reader, as it is through the clicks that the children create the narrative. In the reading event during the research, the teacher would call one student at a time to interact with the work. The students were constantly guided on the gestures and behaviours needed. At the end, the teacher set the children in a circle to discuss their impressions

on the two types of reading and checking their overall understanding. Due to computer problems, we did this activity twice. First, the audio was not active. The second time, the children read it with the audio, a resource used in the story to show the onomatopoeic sounds, noises, or characters' expressions. We could notice a change on how students engaged and understood the work in both situations, showing how multimodal resources allow new interpretations. With the audio on, the engagement was higher (Table 1) and they could notice information from the story that were not available without this semiotic resource, broadening the understanding of the story (Table 2). The teacher's note on the children's engagements, after the use of the audio, shows how strong was this change of behaviour:

Table 1

*Excerpt of Sandra (teacher) on the class of digital literature reading*

This day in the computer lab showed us how important the audio resources are and the difference they can make. We started with only the visual resource and the children's interest changed the moment we could introduce the audio resource. They got closer [to the notebook] and wanted to participate more actively in the development of the story.
--

We can see in Table 2 that the children described the story with details and the changes of understanding due to the use of audio, showing that they understood and memorized the sound effects.

Table 2

*Transcription of an excerpt of a digital literature reading*

Teacher: This story got a bit different from last time! Did you notice? What happened this time, that didn't happen last time?

Researcher: What happened? What was there in the story that you couldn't see and hear in the other?

Student 1: Last time, we couldn't hear anything they were saying.

Teacher: Ah, you couldn't hear!

Student 1: He just did like that! [Opens the arms imitating the character in the story]

Researcher: Did it make a difference?

Student 1: Yes, it did [makes a positive gesture with fingers]

Researcher: Why?

Student 1: Because each sound is different from the other.

Researcher: And does the sound make a difference to understand the story?

Students: Yes! [All together]

Researcher: What was different with the sound?

Student 2: When the voice appeared!

Researcher: The voice appeared!

Student 1: He fell in the hole and there was a noise close to the hole.

Researcher: There was a noise, right?

Student 3: And he did Blá Blá Blá Bá Blá Blá!

Researcher: He was saying Blá Blá Blá Bá Blá Blá!

Student 4: He was all the time doing glup...glup...glup! [shaking the head imitating the character falling]

Researcher: so...I'll make you a question. What was this story about?

Students: Blá Blá! [all together]

Researcher: To talk, right!

As reading is multimodal (Rowse, Kress, Pahl, & Street, 2013) when we, accidentally, removed one of the semiotic resources available, we noticed the repercussion on the type of engagement, but, mainly, in the understanding of the work, as each semiotic resource has a different potential to build meaning (Kress, 2010). We can see in the class excerpt above that the children talk about the relevance of the sound in the construction of meaning of the reading and highlight parts in which certain sounds indicate important information to understand the development of the story. New researchers are needed to check the relevance of associated semiotic resources to understand the meaning of digital literary works by young children. Regarding the gestures and behaviours to read, an interviewed child reported his perception on the different demands in reading a digital and a digitalized work.

Table 3  
*Interview with a student after reading the digital works*

<p>Researcher: What stories did we see today?          Student: Aventura nas Alturas and Blá Blá.          Researcher: Are they the same?          Student: No.          Researcher: They are different [...]          Student: Because in the first one we click and it happens...in the other we had to click for it to happen.          Researcher: You see...in the computer we can also read literature in different way.</p>
--

When indicating that “we click and it happens” and in the other we had to click for it to happen” the child is highlighting the need to participate in the construction of the narrative, differently from the behaviour of a reader of printed works (Chartier, 2002). This takes place, especially, in digital readings that demand a higher level of interactivity, because if the child just looks at the screen without interacting with the work, the story does not develop (Aliagas & Margallo, 2017). It is clear that, in the event of reading the work Blá Blá, the children’s participation in the construction of the narrative promotes their engagement in the reading and favors the building of meaning (Dooley, Martinez & Roser, 2013). As children understand what are the gestures and behaviors needed to engage in the reading of digital works with multimodal resources (Kress & Bazemer, 2009), they become more autonomous readers, as they depend less of adult guidance to read the work.

### *Oral production of texts*

The texts in the digital space are produced considering several elements, among those we highlight the analysis effect of the use of audio-visual resources to produce and present oral texts. We know that in preschool education, the orality and the audio-visual resources are intensely explored. In the case of the digital technology support, these elements are potentialized, as will be shown, allowing children to experiment in practical activities of textual production that take place in the school (Kress & Bezemer, 2009; Soares, 2002). Films, a documentary, a cartoon, a video clip, for example, are audio-visual texts that can be seen online. The

moving images and sounds are blended, composing a multimodal language through which you can see, listen, and click. They also demand certain gestures and behaviours, depending on the type of digital support used (Beaudouin, 2002). The digital environment allows the development of oral languages practices (Bairon, 2000) such as video making. In the activity of video making developed in the research we saw how children could express spontaneously all that can be said to a person or a group in front of a screen.

The proposal of oral text production, analysed in this topic, starts from the creation of a video with the children's participation which aimed to develop abilities of oral text production, as well as competences related to audio-visual literacy. As the children commonly used this resource at home, the use of video to develop a narrative allows an approximation to the out-of-school social practices. We had the support of the main teacher and the computer lab teacher in the preschool to do those practices of reading and writing in the computer of lab. Not all municipal schools in Brazil have a computer lab teacher, however, the preschools in which we developed the research counted with this professional, who contributed a lot to the activity, as the main teachers did not develop the competences to deal with these pedagogical environments of digital technology during their pre-service training in university. The context of developing a class plan with the researchers, the computer teachers, and the main teachers allowed for a more effective use of the resources which opened new possibilities to use digital culture.

The interview with the main teacher and the computer lab teacher (Table 4) points to challenges of planning and executing of the activity with a class of 4 year-old children. In the excerpt bellow the teachers commented in the practice developed from a demand of the children, about animals in nature. Thus, they created the project "*Conta que eu te escuto*" in which each child recorded a video with real or made-up stories about an animal. After the production and editing, the video was presented to the kids in the computer lab at the end of each class, during a period of 3 months.

Weekly, the children listened, either through a film projector or using the computer and headphones, to the narrative of one of their classmates and shared their opinion. The testimony of the teachers who participated in the planning and execution of the activities, shown in Table 4, shows how the resources were used and the editing process, as well as the mediation done by the adults.

*Table 4*  
*Interview with teachers*

<p><b>Main teacher:</b> The project “Tell me and I’ll listen” is part of a broader project about animals. In it we proposed [...] that each child would create a made up story, or a known one, with an animal. Livio and I thought that using multimedia we could develop children’s orality. We filmed and edited the project.</p> <p><b>Computer lab teacher:</b> Actually, it was a simple production, in which we used the cell phone to film; [...], we focused on the child and later put the images in the Windows movie editor, cut some parts and created a home-made video.</p> <p><b>Main teacher:</b> [...] Every week they see a video with a classmate telling a story about an animal [...] they have all been very excited about recording.</p> <p><b>Computer lab teacher:</b> [...] they children use Windows, we put the video in the net, each one in their own screen watches the story with a headphone. In the end of the class, in circle, they tell what they saw [...].</p>
--

Even though it was a “simple” and “home-made” video production, as defined by the computer lab teacher, the planning of this class was different, allowing children to be the authors of a digital text that, to be created, needed other semiotic resources, which go beyond the oral word (gesture, behaviour, intonation, image), broadening the concept of text, as pointed out by Kress (2003). The excerpt of an interview with one of the participant children shows the impressions over the task: “My story was about the little wolf. I made it up. I liked to make the video with teacher Sabrina. I was a bit embarrassed in the beginning, but it was okay after. I’ve never made a video before. I liked to see myself; I think it was good”. We can see that the child assumes the position of author, and also has the opportunity to evaluate him/herself regarding the format and content of the video.

In another part of the interview, the main teacher expresses how impressed she was on the contribution of the activity to the development of children’s orality, highlighting that each one wanted to tell their story better than the other, and it helped the development of a very shy student that was able to “let herself go”. After this shy child recorded the

video in school, she got home and asked the mother to record another video and sent it by WhatsApp to the teacher, showing the chicks that were born in her henhouse, which appeared in her school narrative. This shows the continuation from what the student produced at home and what she lived in school, retaking the theme and the communication format.

After the conditions of textual production were adequately established, i.e.: what to say (about animals), to whom (the classmates), how (through an oral narrative using a digital support for the text), why (to communicate a narrative I know or created about an animal), it is natural that the children would feel motivated, as the teacher confirms “they have all been very excited about recording”.

The interaction with the computer, the classmates, and with their own text in the screen is a very stimulating experience as it engages the child in text production, together with the multimodal resources (images, sound, screen, movement, etc.). We also noticed that this leads to changes in the way children use the language and how they incorporate and receives the digital technologies to communicate and express themselves (Rowse et al. 2013). In the case of the 4-year old children, even if they did not directly participate on the technical production and editing of the video, they could indirectly follow this process by watching how the teachers formatted the video. Besides this, they had the opportunity to receive the classmates’ praises and critics of their narratives and screen performances.

### **Final remarks**

An environment of reflection and suggestion guaranteed in the research allowed the teachers to use the computer and other digital devices as another resource to teach reading and writing. We noticed in the research that the professionals of childhood education could not only appropriate themselves of the theoretical concepts studied, but also create significant practices of reading and writing in digital environments, contributing to the training of their peers, as well as the children’s language development.

The training of teachers to deal with contemporary educational challenges involving digital technologies and the Internet is still inefficient. In Brazilian schools, which have digital resources, those are, generally, underused due to the lack of teacher training (pre-service and in-service) in this area. This is aggravated in a country of continental dimensions as Brazil with, still, great inequalities of access to technologies and Internet (Mercado, 1999; Ramal, 2002; Valente, 2007).

We saw that children from an early age have the conditions to expand the practices involving digital written culture. The digital devices add many semiotic resources (images, sounds, and others) that help young children to engage more in reading and writing activities. By reading and creating multimodal texts from an early age, children can experiment different forms of language that lead to different ways of thinking, listening, speaking, and writing, which are more and more expressive and distinct (Bairon, 2000; Kress, 2009).

## References

Aliagas, C., & Margallo, A. M. (2017). Children's responses to the interactivity of storybook apps in family shared reading events involving the iPad. *Journal Literacy* 51(1),44-52.

Albuquerque, E. B., & Leite, T. M. (2016). Explorando as letras na educação infantil. In Brandão, A., & Rosa, E. (Org.). *Ler e escrever na Educação Infantil – Discutindo Práticas pedagógicas* (93-115). Belo Horizonte: Autêntica

Araújo, M. D. (2013). Frequência e práticas de leitura e escrita no laboratório de informática das escolas dos anos iniciais do ensino fundamental no município de Ji-paraná. *Anais do Congresso brasileiro de Alfabetização*. Belo Horizonte, Minas Gerais, Brasil, 1. DVD.

Bairon, S. (2000). *Hipermídia, psicanálise e história da cultura*. São Paulo: Mackenzie.

Beaudoin, V. (2002). De la publication à la conversation. Lecture et écriture électroniques. *Revista Réseaux*, 119, 199-225. Retrieved from [http://www.cairn.info/article.php?ID\\_REVUE=RES&ID\\_NUMPUBLIE=RES\\_116&ID\\_ARTICLE=RES\\_116\\_0199](http://www.cairn.info/article.php?ID_REVUE=RES&ID_NUMPUBLIE=RES_116&ID_ARTICLE=RES_116_0199).

Bolter, J. D., & Grusin, R. (2000). *Remediation: understanding new media*. Cambridge: The MIT Press.

Brandão, A., & Leal, T. (2011). Alfabetizar e letrar na Educação Infantil: o que isso significa? In Brandão, A., & Rosa, E. (Org.). *Ler e escrever na Educação Infantil – Discutindo Práticas pedagógicas* (pp. 13-31). Belo Horizonte: Autêntica.

Cassany, D. (2002). La alfabetización digital. *Congreso Internacional de la Asociación de Lingüística y Filología de América Latina*. São José, Costa Rica, 13. Retrieved from <http://www.estrategiaeducativa.com.mx/masterconsecuencias/Cassany.pdf>.

Chartier, R. (Org.). (2011). *Práticas da leitura*. (A. Paire, Trad.). São Paulo: Estação Liberdade.

Chartier, R. (2002). *Os desafios da escrita*. (F. M. L. Moretto, Trad.) São Paulo: Editora UNESP.

Chartier, A. M. (2016). Os três modelos da leitura entre os séculos XVI e XXI: como as práticas sociais transformam os métodos de ensino. *Revista Brasileira de História da Educação*, 16(1), 253-273.

Correa, M. B. (2010). A linguagem escrita e o direito à educação na primeira infância. *Anais do Seminário nacional: currículo em movimento – perspectivas atuais*. Belo Horizonte, Minas Gerais, Brasil (pp. 1-12). Retrieved from <http://portal.mec.gov.br/docman/dezembro-2010-pdf/7159-2-7-linguagem-escrita-direito-educacao-monica-correia/file> .

Costa, R. (2003). *A cultura digital*. (2ª ed). São Paulo: Publifolha.

Dooley, C., Martinez, M., & Roser, N. L. (2013). Young Children's Literary Meaning Making: A Decade of Research 2000–2010. *The SAGE Handbook of Early Childhood Literacy* (pp. 395-408). SAGE Publications Ltd: London.

Frade, I., Glória, J., Bicalho, D., Araújo, M., & Garcia, F. (2018). *Tecnologias digitais na alfabetização: o trabalho com jogos e atividades digitais para aquisição do sistema alfabético e ortográfico de escrita*. Belo Horizonte: UFMG/FaE/Ceale.

Frade, I., & Glória, J. (2015) Trabalhando com mídias e tecnologias digitais como instrumentos de alfabetização. In Leal, T., Rolkouski, E. Rosa, E., & Vianna, C. (Org.). *A organização do trabalho escolar e os recursos didáticos na alfabetização*, 4, 69-80. Brasília: MEC-SEB.

Glória, J. S. (2011). *Influências e confluências do uso do suporte de escrita digital na alfabetização de crianças do 1º ano do primeiro ciclo*. (Tese de doutorado) Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brasil.

Glória, J., & Frade, I. (2015). A alfabetização e sua relação com o uso do computador: o suporte digital como mais um instrumento de ensino-aprendizagem da escrita. *Educação em Revista*, 31(3), 339-358. Retrieved from [http://www.scielo.br/scielo.php?pid=S0102-46982015000300339&script=sci\\_abstract&tlng=pt.doi.org/10.1590/0102-4698127905](http://www.scielo.br/scielo.php?pid=S0102-46982015000300339&script=sci_abstract&tlng=pt.doi.org/10.1590/0102-4698127905).

Hayles, N. (2009). *Literatura Eletrônica – Novos Horizontes para o Literário*. São Paulo: Global.

Kress, G. (2003). *Literacy in the new media age*. London: Routledge.

Kress, G., & Bezemer, J. (2009) Escribir en un mundo de representación multimodal. In Kalman, J., & Street, B. *Lectura, escritura y matemáticas como practicas sociales. Diálogos desde los Estudios Latinoamericanos sobre Cultura Escrita*. México: Siglo XXI.

Kress, G. (2010). *A social semiotic approach to contemporary communication*. New York: Routledge.

Luiz, M., Marchetti, R., & Gomes, R. M. (2016). Políticas educacionais no Brasil: direito e obrigatoriedade na educação infantil. *Revista Educação UNISINOS*, 20(1), 28-38. Retrieved from <http://revistas.unisinos.br/index.php/educacao/article/view/edu.2016.201.03.10.4013/edu.2016.201.03>

Mercado, L. (1999). *Formação continuada de professores e novas tecnologias*. Maceió: EDUFAL.

Ministério da Educação. (2017). *Base Nacional Comum Curricular*. Brasília: Autor. Retrieved from <http://basenacionalcomum.mec.gov.br/>.

Panorama Mobile Time/Opinion Box (2017). *Crianças e smartphones no Brasil*. São Paulo: Autor. Retrieved from <https://panoramamobiletime.com.br/>.

Ramal, A. (2002). *Educação na cibercultura – Hipertextualidade, leitura, escrita e aprendizagem*. Porto Alegre: Artmed.

Rowell, J., Kress, G., Pahl, K., & Street, B. (2013). The Social Practice of Multimodal Reading: A New Literacy Studies–Multimodal Perspective on Reading. In Joanne L. & Jackie M. (Org). *The SAGE Handbook of Early Childhood Literacy* (pp. 1182-1207). SAGE Publications: London.

Santos, G., & Braga, C. (2012). *Tablets, laptops, computadores e crianças pequenas: novas linguagens, velhas situações na educação infantil*. Brasília: Editora Liber Livro.

Schön, D. A. (2000). *Educando o Profissional Reflexivo: um novo design para o ensino e a aprendizagem*. (R. C. Costa, Trad.). Porto Alegre: Artmed.

Soares, M. B. (2002). Novas práticas de leitura e escrita, letramento na cibercultura. *Revista Educação e Sociedade*, 23(81), 143-160.

Thorpe, K., Hansena, J., Danby, S., Zakib, F., Grant, S., Houenb, S., Davidsonc, C., & Given, L. M. (2015). Digital access to knowledge in the preschool classroom: Reports from Australia. *Journal Early Childhood Research Quarterly*, 32, pp. 174-182. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0885200615000393>.

Torres, R. (2004). *Poesia Experimental e ciberliteratura: por uma literatura marginalizada*. Poesia Experimental Portuguesa: Enquadramento teórico e contexto crítico da PO.EX. 1,116-127. Retrieved from [http://www.anterodealda.com/rui\\_torres\\_poesia\\_experimental\\_e\\_ciberliteratura.pdf](http://www.anterodealda.com/rui_torres_poesia_experimental_e_ciberliteratura.pdf)

Valente, J. A. (1993). Diferentes usos do computador na educação. *Revista Em Aberto*, 12(57), 3-16. Retrieved from <http://emaberto.inep.gov.br/index.php/emaberto/article/view/1876>