Improving news literacy among 7 to 10 year old children:
An experiment with digital gaming

Iola Ribeiro Campos
(Ioli Campos)

Doctoral Thesis in Digital Media
Tese de Doutoramento em Medias Digitais

(June, 2018)
Dissertation submitted in accordance with the requirements for the degree of Doctor of Philosophy in Digital Media under scientific supervision of Professor António Granado

Tese apresentada para cumprimento dos requisitos necessários à obtenção do grau de Doutor em Medias Digitais, realizada sob a orientação científica do Professor Doutor António Granado

Financial Support from

FCT
Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

UT Austin | Portugal
INTERNATIONAL COLLABORATORY FOR EMERGING TECHNOLOGIES, CoLAB
DECLARAÇÕES

Declaro que esta tese é o resultado da minha investigação pessoal e independente. O seu conteúdo é original e todas as fontes consultadas estão devidamente mencionadas no texto, nas notas e na bibliografia.

O candidato,

[Assinatura]

Lisboa, 4 de Junho de 2018

Declaro que esta tese se encontra em condições de ser apreciado pelo júri a designar.

O orientador,

[Assinatura]

Lisboa, 5 de Junho de 2018
To Gaspar, it all starts with a particle,
ACKNOWLEDGEMENTS

This thesis is the final product of a long and deep personal journey which, despite the great isolation it demanded, would not have been possible without the help of others. I am very grateful to all people who supported me along the way in a variety of forms.

First of all, thank you to my supervisor, Professor António Granado, from FCSH-UNL, who was the first person giving me the confidence to embark on such a voyage. Thank you for always being readily available, encouraging and supportive of my work in both sides of the Atlantic.

I also would like to express my appreciation to Professor Kathleen Tyner from UT Austin for her unparalleled professional mentorship, whilst I was in the United States and Portugal.

A sincere thank you goes to Professor Tom Johnson and all Digital Media Research Program from UT Austin members for showing me how good academic research is done and for all those Friday afternoons spent at Hole in the Wall after our intense meetings.

Thank you to Professor Joseph Straubhaar, from UT Austin, for pushing me to think critically about the methodology of this research.

At UT Austin, I also would like to express my deepest appreciation to Professor Sharon Strover for hosting me; to Professor Craig Watkins for opening my mind to the broader context of the scholarly research about young people and the media; to all people from the Writing Center for helping me improve my writing; to Janelle Hedstrom for her librarian support.

I am also grateful to all scholars I met along the way and with whom I brainstormed ideas about this research. In particular, Professors Stephanie Craft, from University of Illinois; Steen Steesen, from Oslo and Akershus University; Dafna Lemish,
from Rutgers University; and game developer Warren Spector, you probably do not realize, but the simple advices you gave me had a true impact on my research design.

I would like to acknowledge Professor Nuno Correia, from FCT-UNL, for helping me getting the technical expertise I needed to complete my research. I extend my deepest gratitude to student André Sardo who was generous enough to invest the necessary time to make the prototype come true.

Additionally, I express my appreciation for Professors Inês Amaral, from ISMT, and Cristina Ponte’s, from FCSH-UNL, service on my dissertation project initial jury.

This acknowledgement also goes to all elementary teachers, librarians, students and parents who accepted participating in this research. For practical and ethical reasons I cannot name you all. But this work is especially intended for you, so thank you for helping me carrying it on.

Undoubtedly, the most influential person in the process of doing this research was Gaspar, my dearest muse, it all started with you. But such a journey would not have been possible without the great moral support and patience of João too. Finally, thank you to all my family members who were kind enough to simply be there when needed. Finally, to Fatinha and Zé an extra word of appreciation because you raised my understanding of the intersection of education and journalism like nobody else did.
PERSONAL STATEMENT

Research is always biased in a form or another. In an effort to bring more transparency to the researcher’s motivation for this study, this is a first-person-written section aimed at explaining the background of this study.

This thesis idea started to take form, one day in 2014, when I was driving my son to school. He was three years old at the time. The radio was on and we had just stopped at a red light, when suddenly he exhales:

-Mom, the man on the radio just said the word “war”. But you said “war” is a bad word.

I immediately shut off the radio.

The day before we had been watching the animated movie “Planes”, where there is a very short scene with a war airplane. On that occasion, I mentioned that war was a very bad thing. Now, we were, in the car, facing that difficult concept again. “The man on the radio”, as he puts it, was talking about the unrest in Crimea. How was I going to explain him what was that about?

I spent most of my professional career working as a features’ reporter, covering news stories mainly about human rights and environment. Before starting this doctoral program, I had never done journalism for children, neither had I been evolved in education for children at a professional level. But when I was growing up I was a fan of TV newscast for children Caderno Diário, and of newspaper DN Jovem. As well from an early age I enjoyed reading the science section from my parents’ newspaper and playing journalists.
Up until that day in the car, my son’s exposure to the media had been hardly nonexistent. He had just started having a very limited and controlled exposure to screens, a few months before. But I had forgotten about the radio. It seemed such a harmless medium.

Still stopped at that red light, I tried to give him an age-appropriate explanation about why “the man on the radio” was talking about “war”.

Later that night and the next few days, I was searching the Internet for all sorts of advices about how to talk with toddlers about the news, how to explain them what is the news, and how the news is made. I was searching for online platforms about the news for toddlers. I was surprised with the little practical assistance I came across.

It became clear this was the topic I wanted to research. I also knew that I wanted to do something more than just observing, collecting data and analyzing it; I wanted to build something that would have a positive impact in the society.
“IMPROVING NEWS LITERACY AMONG 7 TO 10 YEAR OLD CHILDREN:
AN EXPERIMENT WITH DIGITAL GAMING”

Iola Ribeiro Campos

ABSTRACT

Children are particularly vulnerable to violent non fictional content (Buckingham, 2004). Therefore, scholars sustain the need to educate children about the news (Frau-Meigs, O’Neill, Soriani, & Tomé, 2017). However, news literacy education for young children has been overlooked by academics (Livingstone & Haddon, 2009). There is also a gap in the literature about media education in informal settings (Vraga & Tully, 2015). There are a few digital platforms to teach children about the news. But, again, research about newsgames has been focusing older population’s uses too (Aayeshah, 2012).

This research aims at filling those gaps in the literature by examining how digital platforms propose to educate children from seven to ten years old about the news. To do so, this thesis implemented four studies, using a mixed methods approach. On a first stage, this thesis assessed the best practices by interviewing five children and by analyzing nine digital platforms. On a second stage, a prototype was created and tested twice, first among a group of eight children (pilot study) and then among a group of 50 children (final testing).

Results suggest that there is a great potential in the use of simulation and real stories to teach children about the news. Also, data implies that, when educating children about the news in a digital environment, it is important to achieve a balance between elements of fun and of learning. Not surprisingly, results suggest that children may learn practical skills about the news faster than abstract concepts. Even so, data also indicates that children are curious to learn more about abstract concepts like journalism ethics and the idea of truth.

Finally, another conclusion of this dissertation is that while the use of digital platforms to teach about the news presents many advantages, the learning process may be expanded when there is also human interaction in connection with the digital.

Guidelines to improve digital platforms to educate children about the news are included at the end of this dissertation, as well as recommendations for future studies.

KEYWORDS: news literacy, children and media, newsgames, informal education, media education
“IMPROVING NEWS LITERACY AMONG 7 TO 10 YEAR OLD CHILDREN: AN EXPERIMENT WITH DIGITAL GAMING”
Iola Ribeiro Campos

RESUMO

As crianças são particularmente vulneráveis à exposição de conteúdo violento de não ficção (Buckingham, 2004). Por isso, os investigadores têm defendido a necessidade de se educar as crianças acerca das notícias (Frau-Meigs et al., 2017). No entanto, a academia tem negligenciado o estudo da educação para os media para crianças (Livingstone & Haddon, 2009). Outra área negligenciada pela investigação académica é a educação informal para os media (Vraga & Tully, 2015). Já existem algumas plataformas digitais para crianças sobre as notícias. Contudo, a investigação sobre os jogos digitais de literacia para notícias continua a focar-se sobretudo nos usos de populações mais velhas (Aayeshah, 2012).

Esta investigação procura colmatar essas falhas na bibliografia, examinando como as plataformas digitais propõem educar as crianças, dos sete aos dez anos, sobre as notícias. Para tal, esta tese desenvolveu quatro estudos com uma abordagem metodológica mista. Numa primeira fase, esta tese avaliou as melhores práticas, entrevistando cinco crianças e analisando nove plataformas. Numa segunda fase, criou-se um protótipo que foi testado duas vezes - primeiro com oito crianças (estudo piloto) e depois com 50 crianças (teste final)

Os resultados sugerem que o uso de simulação e de histórias reais tem um grande potencial na educação de crianças acerca das notícias. Os dados também indicam que, quando se educa crianças acerca das notícias num ambiente digital, é importante encontrar um equilíbrio entre elementos de brincadeira e de aprendizagem. Sem grande surpresa, os resultados sugerem que as crianças poderão adquirir competências práticas sobre a produção de notícias mais rapidamente do que conceitos teóricos. No entanto, os dados também sugerem que as crianças têm curiosidade e vontade de aprender mais acerca de ideias abstractas, como ética jornalística ou a noção de verdade.

Outra conclusão desta dissertação aponta para a vantagem acrescida da interacção humana em símbiose com o ambiente digital, apesar das várias vantagens no uso de plataformas digitais para o ensino de crianças.

No fim desta tese, sugerem-se recomendações para melhorar as plataformas digitais que educam crianças acerca das notícias, assim como se lançam pistas para estudos futuros.

PALAVRAS-CHAVE: literacia para as notícias, crianças e media, vídeo jogos sobre notícias, educação informal, educação para os media
# TABLE OF CONTENTS

**INTRODUCTION** ........................................................................................................ 1

**PART I**

**CHAPTER 1**
1. Operationalizing the concept of news literacy .................................................. 8  
   1.1. What is news and the changing nature of journalism ................................. 8  
   1.2. What is ‘literacy’ and what does it mean ‘to be literate’? ......................... 12  
   1.3. The broader notion of media literacy ....................................................... 14  
   1.3.1 Mapping news and media literacy ....................................................... 15  
   1.3.2 Media literacy through time and space .............................................. 17  
   1.3.3. Cognitive versus cultural understanding of media ......................... 20  
   1.3.4. Teaching ‘through/with’ media versus teaching ‘about’ the media .... 23  
   1.4. From media literacy to other literacies .................................................. 25  
   1.5. From media literacy to news literacy ...................................................... 31  
   1.5.1. How to teach news literacy: foundational vs. experientialists ............ 33  
   1.5.2. News literacy: journalists versus media literacy educators .......... 34  
   1.5.3. News literacy: a difficult search term ............................................ 36  
   1.6. News literacy importance and outcomes .............................................. 38

**CHAPTER 2**
2. Children and the media .................................................................................... 48  
   2.1. Utopian versus dystopian views of the relationship between children and the media .............................................................. 48  
   2.2. Protecting versus empowering young people ........................................ 51  
   2.3. The ‘digital natives’ myth ..................................................................... 55  
   2.4. Inequality in access and the gap issue .................................................. 56

**CHAPTER 3**
3. Children and news literacy .............................................................................. 62  
   3.1. Seven to ten year old children and the news ........................................ 62  
   3.2. Formal, non-formal and informal learning ............................................ 69  
   3.3. Constraints to teaching news literacy in the classroom ...................... 71  
   3.4. News literacy interventions at elementary schools ............................. 72  
   3.6. Out of the classroom examples of news literacy education ................ 80  
   3.7. News literacy lessons for children from seven to ten years old ........... 82

**CHAPTER 4**
4. News literacy education in digital platforms .................................................. 84  
   4.1. The role of play in the lives of children .............................................. 84  
   4.2. Serious games and education ............................................................... 85  
   4.3. News and games ................................................................................. 87
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4. Game characteristics</td>
<td>89</td>
</tr>
<tr>
<td>4.5. Studied examples of news literacy digital games</td>
<td>90</td>
</tr>
<tr>
<td>4.6. Advantages of news literacy games</td>
<td>92</td>
</tr>
<tr>
<td><strong>PART II</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CHAPTER 5</strong></td>
<td></td>
</tr>
<tr>
<td>5. Methodology</td>
<td>96</td>
</tr>
<tr>
<td>5.1. Research questions</td>
<td>96</td>
</tr>
<tr>
<td>5.2. Research design</td>
<td>97</td>
</tr>
<tr>
<td>5.3. First stage of research</td>
<td>102</td>
</tr>
<tr>
<td>5.3.1. Exploratory study's methods</td>
<td>103</td>
</tr>
<tr>
<td>5.3.1.1. Exploratory study - Data sample</td>
<td>104</td>
</tr>
<tr>
<td>5.3.1.2. Exploratory study - Data sources</td>
<td>104</td>
</tr>
<tr>
<td>5.3.1.3. Exploratory study - Procedure</td>
<td>106</td>
</tr>
<tr>
<td>5.3.1.4. Exploratory study - Instrumentation</td>
<td>107</td>
</tr>
<tr>
<td>5.3.2. Formative evaluation's methods</td>
<td>109</td>
</tr>
<tr>
<td>5.3.2.1. Formative evaluation - Data sample</td>
<td>110</td>
</tr>
<tr>
<td>5.3.2.2. Formative evaluation - Data Sources</td>
<td>112</td>
</tr>
<tr>
<td>5.3.2.3. Formative evaluation - Instrumentation</td>
<td>113</td>
</tr>
<tr>
<td>5.3.2.4. Formative evaluation - Procedure</td>
<td>115</td>
</tr>
<tr>
<td>5.4. Second stage of research</td>
<td>116</td>
</tr>
<tr>
<td>5.4.1. Prototype methodology</td>
<td>117</td>
</tr>
<tr>
<td>5.4.1.1. Prototype - System design</td>
<td>118</td>
</tr>
<tr>
<td>5.4.1.2. Prototype - Procedure</td>
<td>119</td>
</tr>
<tr>
<td>5.4.2. Libraries’ pilot study’s methods</td>
<td>119</td>
</tr>
<tr>
<td>5.4.2.1. Libraries’ pilot study - Sample</td>
<td>120</td>
</tr>
<tr>
<td>5.4.2.2. Libraries’ pilot study - Procedure</td>
<td>121</td>
</tr>
<tr>
<td>5.4.2.3. Libraries’ pilot study - Data sources and instrumentation</td>
<td>122</td>
</tr>
<tr>
<td>5.4.2.4. Libraries’ pilot study - Data analysis</td>
<td>123</td>
</tr>
<tr>
<td>5.4.3. School experiment and intervention’s methods</td>
<td>124</td>
</tr>
<tr>
<td>5.4.3.1. School experiment and intervention - Sample</td>
<td>125</td>
</tr>
<tr>
<td>5.4.3.2. School experiment and intervention - Instrumentation</td>
<td>126</td>
</tr>
<tr>
<td>5.4.3.3. School experiment and intervention - Procedure</td>
<td>131</td>
</tr>
<tr>
<td>5.4.3.4. School experiment and intervention - Data analysis</td>
<td>133</td>
</tr>
<tr>
<td>5.5. Ethical considerations about carrying out research with a vulnerable population</td>
<td>134</td>
</tr>
<tr>
<td><strong>CHAPTER 6</strong></td>
<td></td>
</tr>
<tr>
<td>6. Results</td>
<td>136</td>
</tr>
<tr>
<td>6.1. Results from the first stage of research</td>
<td>136</td>
</tr>
<tr>
<td>6.1.1. Exploratory study’s results</td>
<td>136</td>
</tr>
<tr>
<td>6.1.2. Formative evaluation’s results</td>
<td>145</td>
</tr>
<tr>
<td>6.2. Results from the second stage of research</td>
<td>164</td>
</tr>
<tr>
<td>6.2.1. Prototype concept</td>
<td>164</td>
</tr>
</tbody>
</table>
6.2.2. Libraries’ pilot study’s results ................................................................. 172
6.2.3. School experiment and intervention’s results ........................................ 177

CHAPTER 7
7. Discussion ........................................................................................................ 201
  7.1. Best practices of gaming and storytelling formats in digital platforms
      that educate children about the news ..................................................... 204
  7.2. Has the experiment produced an overall effect on children? ................. 213
  7.3. Competences’ guideline for digital platforms that educate children
      about the news .......................................................................................... 214
  7.4. Advantages in the use of digital platforms to educate children about
      the news ................................................................................................... 222
  7.5. Limitations ................................................................................................. 224
  7.6. Future research ......................................................................................... 225

CONCLUSION ..................................................................................................... 226

REFERENCES .................................................................................................... 230

List of Tables ...................................................................................................... 240
List of Figures .................................................................................................... 241
List of Graphs ..................................................................................................... 242
Appendix I .......................................................................................................... 243
Appendix II ......................................................................................................... 250
Appendix III ....................................................................................................... 251
Appendix IV ....................................................................................................... 261
Appendix V ......................................................................................................... 263
Appendix VI ....................................................................................................... 273
Appendix VII ..................................................................................................... 282
INTRODUCTION

This thesis is about news literacy education for children in an informal setting. It examines how digital platforms propose to educate children from elementary school aged levels about the news and how can news literacy education in digital media be improved.

This broad topic is unfolded in two sets of research questions: one examines formats (gaming, storytelling structures, and so on) and the other examines competences (knowledge and skills). Both topics were analyzed in terms of what are the common practices of the industry and how children react to those common practices. Children’s perspective was included at various stages of the research.

Most advices for parents with very young children is to restrict their access to the media and to the news (Canadian Paediatric Society, 2017). However, as children grow older, they tend to spend increasingly more time connected to digital media (Haddon et al., 2014; OfCom, 2017; Simões, Ponte, Ferreira, Doretto, & Azevedo, 2014).

Even if children’s access to the media is restricted, it is not realistic to think that they are not going to be exposed to the news, at least indirectly (Buckingham, 2000; Silveira, 2016). Children are often around when parents discuss current events (York & Scholl, 2015). Also, sometimes, children cannot escape overhearing other adults talking about the news in public spaces. Likewise, even if parents control access to the media at home, when children are at school, they may end up listening upsetting information about the news (Campos, 2016). Children get most of their information about current events from television newscasts (Lemish & Götz, 2007). Therefore, news are, undoubtedly, part of children’s daily life (Silveira, 2015).

Children around six and seven years old are particularly vulnerable to violent news content (Buckingham, 2003; Hobbs & Moore, 2013). Not only that, but even older children and teens continue to be quite bothered about violent content when
they access the Internet (Livingstone, Kirwil, Ponte, & Staksrud, 2014). While younger children may become more anxious with concrete threats to themselves and their families, older children seem to be more afraid of abstract threats like nuclear war (Alon-Tirosh & Lemish, 2014).

Additionally, children are going online at younger ages (Haddon et al., 2014; OfCom, 2017). More than half of Portuguese children between six and eight years old are using the Internet (Ponte et al., 2018).

Therefore, scholars agree that media education should start at an early age (Divina Frau-Meigs, O’Neill, Soriani, & Tomé, 2017). And yet, children’s education about the news at elementary level continues to be overlooked by school curricula, especially when it comes to develop critical thinking about the media (Buescu, Morais, Rocha, & Magalhães, 2015).

Academics also concur that more research about children’s media education is needed (Livingstone & Haddon, 2009). Furthermore, and despite the fact that several authors claim that media literacy education should be reinforced at home too (Buckingham, 2009; Hobbs, 2010a), there is still a gap in the literature about media education in informal settings (Vraga & Tully, 2015). Hence, scholars agree that more projects addressing “young people in the contexts of their daily lives and family” are needed (Brites & Pinto, 2017).

On the other hand, there are a few digital platforms aimed at educating children about the news (Digital Stemworks, 2013; Krantz, 2012). But, again, most research about news literacy digital games have been focused on games for teens or older students (Aayeshah, 2012; Spikes & Haque, 2015).

So, this thesis aims at exploring how digital platforms propose to educate children about the news; fostering a better understanding about how different formats can be used in such digital platforms and examining what competences are approached in these digital platforms.

To do that, this thesis implemented several studies in two main stages of research, using a triangulation of methods. To start analyzing how digital media propose to educate children about the news, an exploratory study with five children
was made. Children’s input helped fine-tuning the research focus. Then, a second study was put in place. It consisted of a formative evaluation of nine digital platforms which used gaming and storytelling to educate children about the news. This second study analyzed what competences were taught in those platforms and what were the best practices in terms of formats.

Next, on a second stage of research, we built a prototype which implemented the results assessed during the first stage. A pilot test among a group of eight children contributed to adjust the prototype and the research methodology. Finally, the prototype was tested with a mixed methods approach among a group of 50 children between seven and ten years old.

This dissertation aims at filling the gaps in the literature about media education for young children, newsgames for young children, and news literacy education in informal settings. Additionally, this doctoral research also contributes to children’s education and to educators’ work by creating a prototype which gathers the best practices in terms of formats and competences. Finally, this thesis contributes to the field of game design by providing concrete guidelines about how these digital platforms may be improved.

A big portion of this thesis has already been validated through a blind double peer review process, as results from the various studies were presented and published at various International events. Accordingly, some sections reproduce *ipsis verbis* text that has been published elsewhere. More details about it are provided in footnotes at the beginning of each section, whenever applicable.

This dissertation is organized in two parts: the first four chapters present the literature review and the last three chapters present the methods, results and discussion of all four studies. Guidelines to improve education about the news in digital platforms are included at the end (chapter 7 and conclusion).
PART I

LITERATURE REVIEW
0. Methodological Approach to the Literature Review

A literature review is in a sense an empirical work which should be transparent. Therefore, in this section, I briefly explain my approach to the literature review.

The first systematic review was done during the Summer of 2015 and it started by using the search engine of the University of Texas at Austin libraries (http://www.lib.utexas.edu/indexes/titles.php?id=121). Using the advanced search options, the search was run simultaneously in specific databases in the fields of communication and education, such as Education Source; ERIC; PsycINFO; Communication & Mass Media Complete. It was included an interdisciplinary database too, which was Academic Search Complete. Additionally, more searches were run using Google scholar.

Within those databases several search queries were run and the returned result numbers were as it follows:

- **Search Query 1**
  
  **Databases:** all the databases listed above
  
  **Line 1:** journalism OR "Mass media" OR "Media literacy" (SU)
  
  **Line 2:** "high school" OR "middle school" OR "junior high" OR "secondary school" OR "secondary education" OR adolesc* OR teen* OR children
  
  **Line 3:** news
  
  **Limits:** from 2000 and peer reviewed
  
  Number of results: 891

  Then the same but adding:
  
  **Line 4:** online OR internet OR web OR "SOCIAL networks" OR "social media"
• **Search Query 2**

  **Databases:** Education Source & ERIC

  **Line 1:** journalism OR "Mass media" OR "Media literacy" (SU)

  **Line 2:** teach* OR curriculum OR instruction (SU)

  **Line 3:** news

• **Search query 3**

  **Databases:** all listed above

  **Line 1:** journalism OR "Mass media" OR "Media literacy" (SU)

  **Line 2:** teach* OR curriculum OR instruction (SU)

  **Line 3:** "case stud*"

• **Search query 4**

  **Databases:** all listed above

  **Line 1:** "Media literacy" OR (journalism and education) OR (journalism and study)

  **Line 2:** "literature review" OR "review of the literature" OR "systematic review" OR "meta analysis"

  **Limits:** peer reviewed and from 2000

Then, another search was made in the full text of theses and dissertations available at The University of Texas at Austin libraries (http://www.lib.utexas.edu/indexes/titles.php?id=114) and at the Worldcat (http://www.worldcat.org/advancedsearch).
Following that, a specific search for books was made, again using the University of Texas at Austin Library book search engine and the Interlibrary Loan at The United States which facilitates the access to books available in almost all American universities’ libraries. Google Books ([https://books.google.com/](https://books.google.com/)) was used too.

Additionally, I run a search in Portuguese language - with the terms “educação para os media”, “literacia mediática” and “literacia para os media” - using the database “Repositórios Científicos de Acesso Aberto de Portugal”.

After that, I activated the Google Scholar alerts for the search term “news literacy” and I compiled all relevant results under that query almost until the date of submission of this thesis.

Based on the first batch of the initial research, I found additional references by following references quoted in the analyzed articles or books that seemed to be pertinent to the search. At the same time, while reading the studies included in the first batch I also run additional searches on Google scholar, using other search terms, such as storytelling+“media literacy” or gaming+journalism, for instance.

More additional searches were made on the search engines of the International Conferences attended by this researcher, such as IAMCR, ICA or IDC. Some of the papers included in this research were also suggested by senior scholars in the field of media literacy.

Most of the search was narrowed to English language, although some search in Portuguese and Spanish languages was done too. Overall, I ended up analyzing over 300 sources, including roughly 150 peer reviewed articles; 20 thesis, 50 books, 20 book sections and 20 reports. The years ranged from 1933 to 2018. However, most of the sources were published in the last seven years.

Most of the works selected for analysis and quoted in this thesis were selected on the ground of their scientific quality and/or topic pertinence.
CHAPTER 1

1. Operationalizing the concept of news literacy

1.1. What is news and the changing nature of journalism

Traditionally, and generally speaking, news has been defined as “new information about an event or issue that is shared with others in a systematic and public way” (Zelizer & Allan, 2010: 80).

The news is information about present events and it should not be confused with history, as Parks stated a long time ago. “News remains news only until it has reached the persons for whom it has ‘news interest’. Once published and its significance recognized, what was news becomes history” (Park, 1940: 676). This is an idea that continues to be true. Also, the idea of news as a form of knowledge, which Robert E. Park sustained in 1940, continues to be valid today.

News also used to be defined by its gatekeepers. According to the gatekeeping theory, the news professionals would set the public agenda, telling the public what news to think about (McCombs & Shaw, 1972). The framing theory soon expanded on the gatekeeping notion by suggesting that the way how news would be presented to the public would also have an influence in the public’s perception of the news (Goffman, 1974).

News is, in that sense, a social activity or a social construction, it portrays not the reality in itself but sort of a window to the world (Tuchman, 1980). So, news used to be seen as dependent on an interpretative community composed by news professionals, such as journalists and editors, who work based on a set of routines and rituals (Zelizer, 1993) and a set of constraints like a demanding time machine (Schlesinger, 1977), limited space and time allotted for the news pieces, and so on.

---

1 Sections 1.3. and 1.5. have been combined in a paper which was presented at ICA 2017 Journalism Studies Students Colloquium PreConference (Campos, 2017b).
Surely, news and journalism are not the same. But journalists used to be an important player in defining what news was. Many journalism studies’ guidebooks define news as a set of news values (T. Harcup, 2015). The news values or news criteria are another important concept to bear in mind when trying to understand what the news concept is. The news criteria refer to the way journalists used to decide which events were newsworthy and which were not (Galtung & Ruge, 1973). Those news values would include ideas such as uniqueness or unexpectedness, geographical and cultural proximity, personalization, continuity, public interest, interest of the public, current, prominence, among others.

The advent of new media has had an impact on the traditional notion of news values. Added upon the idea of pre-fabrication of news (Bell, 1991), Allern (2002) suggested the existence of commercial news values. Then, Harcup and O'Neill (2001, 2016, 2017) have reevaluated the idea of news values several times. In their recent work, where they try to define what news is today, they present a whole new list of news criteria. Some of those news values would include: exclusivity, bad news, conflict, surprise, audio-visual, shareability, entertainment, drama, follow-up, the power elite, relevance, magnitude, celebrity, good news and news organization’s agenda (Tony Harcup & O'Neill, 2016).

In other words, the boundaries of what was once considered the scope of news seem to be getting blurred with entertainment, propaganda and advertising (Loth, 2012; Patterson, 2003; Spikes & Haque, 2015), while new genres such as infotainment or sponsored content arise.

In addition to the changing nature of the news concept through recent times, one has to note that the concept may also have different interpretations according to geography. Although journalists tend to form a professional community that share routines and values, there are cultural differences that may interfere in their practices (Hallin & Mancini, 2004). That may also be true as for their notions of the news.

Accordingly, theories of news are changing in this rapidly evolving digital context. The new flow of information through the new media and the social networks, forces scholars to revisit these theories countless times, and scholars are
still trying to understand what news is and who defines news nowadays. Sure journalists and editors are no longer the sole gatekeepers of the news. News is now being increasingly defined by press officers, algorithms, robots and users.

Also, the perception we now have about the public is far from the totally passive idea presented by the first audience theories, like the hypodermic needle theory, although some authors are now revisiting one step flow models with a new perspective (Bennett & Manheim, 2006). The public is no longer a mere spectator of the news. The public has the possibility of participating in the news-making process, through a variety of initiatives such as blogs, citizen-journalism, first-hand testimonies in social media and content curation (Deuze, Allan, & Thorsen, 2009).

The way how young people perceive what is news has evolved, like their news consumption habits have also changed. “Young people’s concept of what constitutes ‘the news’ is amorphous and often extends well beyond the content produced by traditional journalistic institutions” (Madden, Lenhart, & Fontaine, 2017: 8).

Given this changing nature and broad spectrum of perspectives, there are other definitions of the news that go beyond the scope of journalists’ work and traditional theories which are worth paying attention to. Malik et al. (2013) resume contemporary efforts to define news in three ways: the anthropological, the systemic and the empirical conception of news.

Quoting “The Elements of Journalism” by Kovach and Rosenstiel, Malik et al. (2013) sustain that within the anthropological conception, “news is information about what is occurring beyond our direct experience (Kovach and Rosenstiel, 2007 qtd. in Malik et al., 2013). Hence news is regarded in its broader sense, including gossip, word-of-mouth, sports and entertainment.

Then, within the systematic conception, and still connected to the traditional journalism, the idea of news would be limited to information that “informs and empowers citizens to participate in a civil society and democratic processes” (Downie and Kaiser, 2007 qtd. in Malik et al., 2013 4). This perspective is linked to
the core of journalism functions and is the closest to the news literacy movement as it will be developed further on.

Finally, Malik et al. (2013) sustain that within the empirical conception news is regarded in its broader sense, including “whatever people think the word means” (Malik et al., 2013: 4). Indeed, the news may be more than what traditional theories of journalism used to tell us that news was.

On the whole, and despite all the changes just described, Zelizer and Allan’s definition of news which was quoted at the beginning of this chapter seems to be up to date. However it could become more complete if combined with the idea of the empowerment function of the news in a democratic society. Although, for the sake of clarity, especially since the events of 2016 surrounding North American election and the polemic around disinformation, misinformation and mal-information, I would prefer to add to their definition the idea of factual. It can be argued that factual is difficult to define; it may differ with each person and group. However, I find it less problematic than the idea of truth, that has been so debated after the events of 2016. So, in this study, I like to think of news as:

“New information [that is factual] about an event or issue that is shared with others in a systematic and public way and that may empower citizens to participate in a civil society and democratic processes.”

(adapted from Malik et al., 2013; Zelizer & Allan, 2010: 80).

The digital media, the new business models, the collapse of several newsrooms and the severe cuts in many others have had a profound impact in the journalism activity. Those changes are forcing academics to rethink their definitions and theories about the news. In conclusion, news and journalism are two different concepts that seem to be drifting apart in our contemporary media landscape.
1.2. What is ‘literacy’ and what does it mean ‘to be literate’?

At first ‘to be literate’ meant to be skilled in the art of rhetoric. It was mostly related to the art of speaking and listening (Hobbs & Moore, 2013). Then, after the Gutenberg revolution, the literacy concept developed and it became more connected with the competence of encoding and decoding messages. It was, at that moment, mostly related to reading and writing (Maksl, Craft, Ashley, & Miller, 2016). That is what Hobbs and Moore (2013) call as print literacy.

Other scholars prefer to place literacy in the sphere of the discourse theory, arguing that discourses are much broader than languages (Tyner, 1998).

Soon, literacy was not only about the ability to read and write, but also interpret messages, what is generally referred to as ‘functional literacy’. For instance, the literacy tests made by the Organization for Economic Cooperation and Development (OECD) are not only focused on reading skills. They try to examine the ability that a population has to decipher technical information, such as leaflets with drugs’ directions, for example. This is how OECD defines functional literacy:

“A person is functionally literate who can engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community’s development”

(OECD, n.d.)

According to OECD (n.d.), functional literacy has to do with the ability of an individual using print literacy in the context of a society.

The concept of functional literacy has also evolved over time within UNESCO, as Gutierrez and Tyner (2012) recall. In 1970 UNESCO started by distinguish functional literacy from traditional literacy:
“Functional literacy differs from traditional in that it is not an isolated, distinct, or even an end in itself, but it allows us to consider the illiterate as an individual or a member of a group, according to a given environment and to a developmental perspective.”


Sixteen years later, UNESCO came back to the notion of functional literacy. They started to give more importance to how functional literacy would contribute to a greater and more complete interaction between the individual and the society. So they rearticulated their definition:

“Functional literacy refers to people who can perform all activities necessary for the effective function of their group and community and that also allows one to continue using reading, writing and calculation for his own development and that of their community.”


This latest view of functional literacy is in consonance with the OECD’s definition. Also, in accordance with this last view, Collins and Horton (2009) sustain that functional literacy is related with the use of literacy in daily life. “The ability to read will ensure one’s ability to navigate in society” (Collins & Horton, 2009: 85).

Functional literacy is somehow connected with the idea of critical literacy. However, critical literacy has an even bigger social dimension than functional literacy. Critical literacy is the awareness about language use that refers to the self in the society and the ability to question the power relations and discourses, as first suggested by Freire (1968 rpt. 2014) and later by Foucault (1980). Critical literacy leads to rethink the world, Shor (1999) explains. “Critical literacy thus challenges the status quo in an effort to discover alternative paths for self and social development”
(Shor, 1999: 1). According to Shor (1999), critical literacy would somehow be above functional literacy – not only would it enable the individual to function in a society, but it would also equip him or her with the necessary reasoning to be critical of that interaction.

More recently, the idea of ‘being literate’ also became to include competencies to read, interpret and create images, media and transmedia messages, to use computers, and so on. So other labels such as ‘visual literacy’, ‘information literacy’, ‘computer literacy’, ‘tool literacy’ have arisen. Most of those have been placed under the umbrella concept of ‘media literacy’, as ‘news literacy’ also has.

Functional and critical literacy place an important role in the case of media and news literacy. They contribute, for example, for a greater awareness of how media messages are being framed, of who owns the media, and so on.

1.3. The broader notion of media literacy

Before delving into what exactly ‘news literacy’ means, it is useful to first understand the broader framework of media literacy. Indeed, "if a definition of news literacy is the destination, then the journey to reach it passes through several other literacy neighborhoods" (Maksl et al., 2016: 2). This section explaining the concept of media literacy matters not only because it forms the broader theoretical framework in which our specific field of work of news literacy fits in; but it also matters because several of the issues that have been debated in the field of media literacy are also pertinent in the field of news literacy.
1.3.1 Mapping news and media literacy

Nowadays, media education seems to be a common concern for many educators. Yet, the idea of teaching someone about the media isn’t new. It is almost as old as mass media themselves. The concept has been in constant evolution over time and it still means a different thing to different people. There are at least three probable causes for that.

First of all, media literacy is highly multidisciplinary. It crosses the field of artists, media professionals, technology experts, educators in general, non governmental organizations, political stakeholders and international institutions. While they certainly share some common ground when using the term ‘media literacy’, they may also have different views and uses when applying that term.

Second, the object of its study is in constant change as technology continues to evolve overtime. In the early days, media literacy was about the use of audio-visual materials. With the advent of digital media, many new concerns about social uses have arisen. The concept of media literacy tends to be inclusive, meaning that all the new literacies that have been born with the new media tend to be placed under its umbrella construct. Potter (2011) describes media literacy as a continuum, instead of a category, with multidimensions. Digital media seem to be breaking traditional barriers between media and therefore also between the domains of several literacy’s concepts (R. H. Jones & Hafner, 2012).

Third, there is a wide variety of terms and nuances in meaning: media literacy, media and information literacy, media education, media studies, digital literacy, digital citizenship, and so on (McDougall & Pereira, 2017). In fact, Frau-Meigs (2012) sustains that media and information literacy (the term used by UNESCO) is an obsolete term, proposing the use of transliteracy instead.

Precisely because ‘media literacy’ is an inclusive concept it may be confusing at first to find its borders and to understand exactly where the idea of ‘news literacy’ fits in it. In fact, not all authors agree about it and there are ongoing factions in this field complicating even further a simple explanation about the concepts.
In figure number 1 there is a visual representation of some of these conceptual neighborhoods and their interactions. This diagram was presented at a conference about news literacy held in 2014, in a section aimed at defining the field of news literacy (Wallace, 2014). This is just one possible representation of the debate. It entails eight intersecting sets that are relevant for a ‘news literacy’ definition. More sets could have been considered. Although this diagram is useful to better understand the intersections of concepts, I would add that the borders of all these sets are fluid.

Finally, a simple but important clarification is the one made by Buckingham (2003), who explains that media education is the process to raise media literacy, while media literacy is the outcome of media education.
1.3.2. Media literacy through time and space

In general, Europe and Canada have taken more steps to put media literacy education in practice (Tyner, 1998). Although a very big portion of media content was being produced in Hollywood, the United States were not in the forefront of the media literacy concerns. Media education started to take off a lot sooner in countries like the United Kingdom, Canada and Australia (Potter, 2011).

The idea of media literacy like we understand today (the result of an education about the media) started to appear in the United Kingdom in the 30s (Leavis & Thompson, 1933).

The United States would have to wait until the 60s to start giving the first steps into the media literacy movement (d. boyd, 2014). The American John Culkin, a disciple of the Canadian McLuhan, started to teach media education in schools during that decade. Later on, he would advocate for the introduction of media studies in public schools’ curricula. Culkin also highlighted that new media was a new language, adding that its grammar was yet unknown. He also emphasized the importance of using all the senses in the apprehension of media messages. “Above all, Culkin wanted to teach teachers to think in new ways. He believed that if teachers understood the function of media in culture, they could use that awareness to help young people become better learners.” (Moody, n.d.).

Later on, the British Masterman made a very important contribute to the field, establishing a theoretical framework for media education, which was based on the principle of media as a representation of reality. This idea is in line with the social construction of news approach, mentioned at the first section of this chapter.

"Media education has a first principle which I saw illustrated with beautiful simplicity many years ago by a Nottingham art teacher, Fred Bazler. Fred held up to a class of eight-year-olds a painting of a horse and asked them
what it was. When the kids answered, 'A horse,' Fred simply said it wasn’t. This caused some confusion, but after a little prompting the children began to understand the distinction between a horse and its representation in a painting.”


Next, Masterman continues sustaining that the distinction between image and referent and/or signifier and signified is the pillar of media education. Also considered one of the pioneers to suggest the study ‘about’ mass media in schools, he argues that the media are not mere windows to the world, but representations or reconstructions of the world.

But he goes a step further, relating the representation idea with ideology. "It may be said that the ideological power of the media is roughly proportional to the apparent naturalness of their representations" (Masterman, 1985, rpt. 2006: 21). Masterman’s approach to media literacy is of particular interest to this study as also the news literacy movement explains news as a construction. For him, the purpose was critical autonomy.

Throughout the 80s and 90s, British and Australian have interchangeably used several terms such as media studies, media education, and media literacy. "The Canadians announced that for the most part they were calling the practice of teaching about media, media education" (Tyner, 1998: 119).

A very important mark for the history of media literacy was the Grunwald Declaration on Media Education, a call for action signed by 19 nations in a UNESCO symposium held in 1982, which recognized the role of media in society and the need to teach people about it (UNESCO, 1982).

Then, a decade later, the Aspen Institute, a nonprofit think tank assembled leaders from the US and Canada, who were working in this field, to discuss strategies and directions. "This gathering was a major milestone in media literacy reuniting critical viewing scholars from 1970s with new leaders in the field and reviving interests in the subject" (Tyner, 1998: 118). After going back and forth with several
possible definitions of ‘media literacy’, in the end they reached an agreement about the following version: media literacy “is the ability of a citizen to access, analyze, and produce information for specific outcomes” (Aufderheide, 1993: v). Although the definition has evolved over the years, and it continues to exist a lack of agreement about it, this definition continues to be one of the most common ones. Its understanding, however, may be approached by two different theoretical frameworks as the next section explains.

Another important milestone at an institutional level was the Paris Agenda, which issued twelve recommendations for media education, recognizing that “scaling up media education was a matter of urgency” for “all educational levels” (UNESCO, 2007). That message was reinforced seven years later and extended to the digital sphere with the Paris Declaration on Media and Information Literacy in the Digital Era (UNESCO, 2014).

There is still much to do, though. A study on recent trends about media education in Europe suggests that “even countries with a long tradition of media education face some constraints”. For example, on the one hand, in Scandinavia where teachers are highly trained, they do not have a basic media education course; on the other hand, in the Netherlands, where media education is not integrated in school curricula, there is training for teachers (Petranová, Hossová, & Velický, 2017).

In Portugal, the media literacy movement was almost inexistent before 1974, when the country ended a dictatorship regime, closed to the outside, and started a democratic process. Before the 1974 Portuguese Revolution, there were only some shy initiatives of school newspapers, following Freinet’s and the modern school movement in the sixties and seventies (Pinto, Pereira, Pereira, & Ferreira, 2011). Much more prevailing than those few initiatives, were the school newspaper’s led by school directors and aligned with the political regime (Pinto et al., 2011). At that time there was not even a single university degree related with media studies. The first degree about communication was only launched in 1979. Therefore, Portugal is usually placed among the countries that lack tradition in media education (Petranová et al., 2017).
However, after 1974, several media education initiatives were put in place in Portugal. In 1986, the campaign “Ler jornais é saber mais” (meaning Reading newspapers is to know more) aimed at raising awareness among high school students for the importance of the press (Lopes, 2011). Three years after that, it was launched the project “Público na Escola”, which energized schools to create more newspapers. Other important marks for media education related with the news were Castelo Branco’s project, between the years 2007 and 2011; Medialab from a private newspaper and Journalism at School from Setúbal na Rede, a news website (Brites & Pinto, 2017). Media education about film also had an important role during that time with associations like “Cineclubes” (Pinto et al., 2011). The project Media Smart about advertisement entered the country in 2008 (Pinto et al., 2011).

In a short period of time, Portugal gave many steps and caught up with most western countries. In Portugal too, many kinds of stakeholders got involved in media education – ngos, libraries, private companies, universities, schools, the government, public institutions, the media, and so on (Pinto et al., 2011). Only in 2016, there were at least 57 key media literacy stakeholders operating out of the classrooms (M. Chapman, 2016).

1.3.3. Cognitive versus cultural understanding of media

The ‘media literacy’ definition reached at the Aspen Institute in 1992 may be the most used one today, however there is still an ongoing debate in the literature about its understanding between the behaviorist and the cultural frameworks.

With a background from the psychology field and media effects, Potter approaches the concept of media literacy mostly through a behaviorist tradition, proposing a cognitive theoretical framework for media literacy education. This professor at the University of California at Santa Barbara, sustains that his model
would contribute to a more “conscious processing of information” and, therefore, a better preparation for the media exposure (Potter, 2004).

In his 2004 book, Potter considers five basic knowledge structures in the field of media literacy – knowledge about media content, media industries, media effects, the real world and the self (Potter, 2004). In a later work, he stresses three building blocks within media literacy – personal locus, knowledge structures and skills (Potter, 2011). The knowledge about the self and the personal locus are possibly his most innovative contributes to the study of media literacy.

This knowledge of the self or personal locus is related to the awareness that individuals have about their own relation with the media – why do they seek media messages, how do they consume and internalize media messages at an intellectual, emotional and moral level.

Within the notion of knowledge of the self, another important contribute of Potter’s work is his idea of automaticity. Automaticity is the word that psychologists use to refer to the automated processing of information. It “is a state where our minds operate without any conscious effort from us. Thus, we can perform even complicated tasks routinely without even thinking about them” (Potter, 2011: 7).

Potter (2011) illustrates this idea of automaticity with the situation when individuals are learning how to read. First, we learn to join letters to form words and we start by doing that with some effort. Then, we become able to read fluently almost without any thought. It is the same as when we learn how to drive. But then, Potter says that there are also “triggers” which are things that suddenly call our attention and make us come out of the ‘auto-pilot’ mode we were in (Potter, 2011). When talking about media consumption, media literacy would allow the ability to enhance that “trigger” more often. In other words, media literacy would contribute to turn off the ‘auto-pilot’ mode of media consumption in this “information-saturated culture”.

Often, “we put our minds on ‘automatic pilot’ to protect ourselves from the flood of media messages we constantly encounter. The danger with this automatic
processing of messages is that it allows the media to condition our thought processes" (Potter, 2011: 3).

To sum up, media literacy is what would allow us to take control of the media experience. It would help us to better “navigate”, protecting us from harmful contents (Potter, 2011).

Coming from a cultural studies perspective, David Buckingham maintains that a cognitive approach does not suffice in a comprehensive media education. Buckingham is considered one of the main scholars in the field of media and young people. He was the founder of the Centre for the Study of Children, Youth and Media at the Institute of Education from the University of London, where he also was a Professor. Distancing himself from Potter’s view, Buckingham proposes a more sociological and cultural framework:

“In the case of media literacy, therefore, this approach suggests we cannot regard – or indeed, teach – literacy as a set of cognitive abilities which individuals somehow come to ‘possess’ once and for all. We would need to begin by acknowledging that the media are an integral part of the texture of children’s daily lives, and that they are embedded within their social relationships.”

(Buckingham, 2003: 39)

Highlighting the social nature of literacy, Buckingham suggests that media literacy should be approached with a social theory. Media education would, therefore, include not only the ability to use and interpret the media, but it would also involve critical reflection, a “broader analytical understanding”, including knowledge about the economical, institutional and historical context of media.

Buckingham also points out to the fact that different groups of children possess different relations with the media which are a consequence of them having
different histories of media experience. In that sense, media education could activate different results (Buckingham, 2003).

An empirical study by Hobbs, Donnelly and Moen (2013), about news, video production and civic engagement among adolescents confirms just that. In the end of the intervention, the authors concluded that even students who were enrolled and attended the same multimedia class, ended up experiencing different learning experiences (Hobbs et al., 2013).

To summarize, there are two possible approaches to the concept of media literacy: the cognitive or behaviorist and the social or cultural. I believe that this debate between Potter and Buckingham is not limited to the broader arena of media literacy and could be applied to the specific field of news literacy. I would also argue that both approaches complement themselves and both have useful insights to the notion of news literacy in particular.

1.3.4. Teaching ‘through/with’ media versus teaching ‘about’ the media

Another very important ongoing debate when defining media literacy, and that it is also relevant when discussing a definition of news literacy, has to do with the distinction between teaching ‘with or through’ media and teaching ‘about’ the media (Buckingham, 2009; Gutiérrez & Tyner, 2012).

One thing is to use media in the classroom and claiming that it contributes for the media literacy enhancement. Another one would be to teach the students about the media industry. These are two very different perspectives, but not all authors seem to differentiate them clearly. Indeed, if we look into media literacy history, we can find some confusion about it, since the very beginning.

For instance, some scholars claim that the first author to approach media literacy education was Edgar Dale (1933, rpt. 1954). Others maintain that, in fact, it was Leavis and Thompson (Leavis & Thompson, 1933). All those authors published
their work in the same year – 1933. However their approaches to what one might consider media literacy are quite different, and that is possibly why even today we can find some discrepancies in the literature when describing who the first author working on media literacy was.

The title of the work of Dale already gives us a clue where he might situate in the debate ‘about vs with/through’: “Audio-visual methods in teaching”. Indeed, it might be more accurate to say that Edgar Dale was an early advocate for the integration of more media beyond print into educational curriculum. In his book, Dale presents a model about what people would remember more or less information according to the source where it would come from. According to the model that he called “cone of experience”, reading texts would be the activity that people would generally remember less, and designing/performing a presentation the activity they would remember the most. In between, and in an increasing order of importance, it would lay hearing, viewing still images, and then videos, attending exhibits, watching demonstrations, participating in workshops, designing collaborative lessons and simulating or experiencing a lesson.

“The cone is not offered as a perfect mechanically flawless picture to be taken with absolute literalness in its simplified form. It is merely a visual aid in explaining the interrelationships of the various types of audio-visual materials, as well as their individual ‘positions’ in the learning process.”

(Dale, 1933, rpt. 1954: 42)

Since it was published, this model has been controversial for not being accurate, or adhering to Dale’s original intentions (Seels, 1997). Since then, the research about media and people’s memory has evolved a lot. Anyway, his work was clearly about the use of media in the classroom and not about teaching about the media.

On the other side of the Atlantic Ocean, in the United Kingdom, the work of Leavis and Thompson, published in the same year as Dale’s, took a completely
different approach to the idea of media literacy. This view is closer to the idea of media literacy education as a way of teaching ‘about’ the media. In the book “Culture and environment: The training of critical awareness” the authors sustained that the school should teach students about advertisement. “A modern education worthy of the name must be largely an education against the environment of [advertisement]” (Leavis & Thompson, 1933: 106). It is true that a large portion of media literacy education even today is about educating citizens about the field of advertisement.

In brief, since the early days of the media literacy movement there were two completely different approaches to the term. One would consider the use of audiovisual in teaching as media literacy education. The other would only consider media literacy education the approaches which teach about the media. I alluded to the early days of the movement as an illustration of these two views. Nevertheless, both approaches can still be found in the current literature. And in some cases the important nuance continues to not be clearly identified.

I find important to draw that distinction because a similar confusion can be found in the literature about news literacy. Some teachers may consider news literacy the mere use of newspapers in class, for example. However, I approach news literacy education as education about the news.

### 1.4. From media literacy to other literacies

For some authors, media literacy works as an umbrella concept, under which many other kinds of literacies have been placed, one of those being news literacy. We have also seen how those literacy subsets often juxtapose and intersect. Sometimes they even overlap as different authors will use different terms for the same conceptual idea, making it all somehow confusing at first. Then, some of those subsets are closer to news literacy, others not that much. In this section, I will briefly look at some of the subsets that are generally considered to be closer to news
literacy. The purpose is to clarify the terms and their meanings. Those will be information literacy, digital literacy, visual literacy and civic literacy.

However, it is important to state that this umbrella idea may generate some controversy as some authors would argue that media literacy is in itself only one kind of literacy among many others such as math literacy, tech literacy and so on. For the purpose of this study, I will focus on the literacies that somehow juxtapose with news literacy.

a) Information literacy

Malik et al. (2013) uphold that news literacy is at the intersection of media literacy and information literacy. The link between media and information is indeed so strong that UNESCO’s work in this area is conducted under the framework entitled as “MIL” which stands for media and information literacy (UNESCO, 2014, 2015).

Information literacy is usually defined as the knowledge that individuals require to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (American Library Association, 1989). The importance of information literacy has been growing due to the escalating of the “information overload”, a term first coined by Alvin Toffler (1980). It requires some technological skills, however, it has “broader implications for the individual, the educational system, and for society” (American Library Association, 2000). It is usually more connected with the realm of library and information studies.

The huge amount of information that is produced every day is one of the biggest challenges we face today, according to Potter. “More information has been generated since you were born than the sum total of all information throughout all recorded history up until the time of your birth” (Potter, 2011: 4). As a result, to explain the importance of media literacy in this “information-saturated culture”, Potter brings up the notion of “automaticity” and “trigger” used in psychology that we already explained.
The author argues that with the rise of mass media, especially with digital media, a new problem has emerged. Now, he claims, the main concern is no longer of “gaining access”, rather “protecting ourselves” from the information overflow (Potter, 2011), alluding to the second stage of the digital divide debate that we will examine further on.

To sum up, Potter states that as we are exposed to an increasing amount of messages, we are less alert to them. “With reduced concentration, our increased exposure does not translate into increased learning” (Potter, 2011: 9), he says sustaining precisely the opposite. So he asks who has programmed our automatic routines: the mass media themselves, advertisers, our parents, friends, teachers or a combination of them all?

"When you allow others to dominate the programming of your mind, then when your mind runs on automatic pilot, you end up behaving in ways that achieve the goals of those programmers rather than behaving in ways that would make you happier. Therefore it is important that you periodically examine the code that has been programmed into your mind. (...) Taking control is what media literacy is all about. (...) "When you are media literate, you have clear maps to help you navigate better in the media world so that you can get to those experiences and information you want without becoming distracted by those things that are harmful to you."

(Potter, 2011: 9)

Hence Potter’s media literacy definition is all about informed choices and it is intrinsically connected with the notion of information literacy.

The same could be said about news literacy. We live in an age when the news comes to us without us even looking for them, through social media, for example. Therefore, knowing what is fact and opinion or how the news is made, can be particular important in order for to be in more control of the way we consume the
news. That may be even more important especially among children, who are a vulnerable population.

Assessing information validity is a matter of critical thinking which is fundamental not only to information literacy, but also to media and news literacy. Media literacy is about improving critical-thinking skills in the sense that it contributes for an independent judgment and more informed decisions concerning mass media messages. Therefore, according to Silverblatt’s overview of the literature, critical thinking skills in the field of media literacy should help to distinguish verifiable facts and value claims; contribute to determine the reliability of a claim or source or the accuracy of a statement; and aid detecting bias, among others (Silverblatt & Eliceiri, 1997: 40).

With the arrival of the Internet one could expect a bigger variety of voices, a more democratic access to news and data and more access to verification check and balances of accuracy. However the information overload, the velocity with it is spreading and the different kinds of news outlets and intentions that proliferate in the Internet seem to be creating more entropy, than actually easing up the flow of news communication (Loth, 2012; Spikes & Haque, 2015). Hence, there is urgency in increasing overall information literacy.

b) Digital literacy, computer literacy, technological literacy and tool literacy

Media literacy, news literacy and information literacy, all require a certain knowledge of technology. Or, in other words, they all require some digital, computer, technological and/or tool literacy.

Hobbs and Moore (2013) establish the distinction between three sets: digital, computer and technological literacy. They sustain that digital literacy is about “being a socially responsible user of the Internet and social media”. Meanwhile, they explain that computer literacy is about “understanding and using computer technologies effectively”. Then, they add that information literacy is about “information access, retrieval evaluation, and usage” (Hobbs & Moore, 2013: 18).
There are several other search terms and ways of categorizing. For example, Tyner prefers the use of the expression “tool literacy”. According to the author, in the context of information literacy, tool literacy would include three multiliteracies: computer, network and technology (Tyner, 1998).

Buckingham refers to digital literacy in relation to the inclusion issue.

"If media literacy is essentially a regulatory initiative, digital literacy is primarily about inclusion. The challenge here – at least as governments see it – is to ensure that everyone is part of the so-called ‘knowledge economy’, or the ‘information society’.”

(Buckingham, 2009: 17)

It may be the case that these terms have been historically linked to the debate about the digital divide. However, as we will see on chapter two, the digital divide debate now is no longer just about technological knowledge, but also about media and news literacy.

Either we call it digital, technological or tool literacy, these sorts of skills are generally more related to the production dimension of media and news literacy, although they also imply some competence in access and analysis.

c) Visual literacy and design literacy

Another set that fits under the umbrella construct of media literacy and that also relates to news literacy is the visual and/or design literacy. These allude to the knowledge of reading, interpreting and/or creating images (Hobbs & Moore, 2013; Kedra, 2016).

The term visual literacy is usually credited to John Debes:
“Visual Literacy refers to a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, symbols, natural or man-made, that he encounters in his environment. Through the creative use of these competencies, he is able to communicate with others. Through the appreciative use of these competencies, he is able to comprehend and enjoy the masterworks of visual communication.”

(Fransecky & Debes, 1972: 7)

Visual and design literacy are important to news literacy as they contribute for a greater awareness about the use of pictures in the journalism discourse. It can, for example, contribute for debating issues such as image manipulation. They also relate to navigation, web page design and many other design elements beyond pictures, such as virtual and augmented reality, for instance.

d) Civic literacy

When I started by defining news, I mentioned the idea of news as a way to empower citizens and engage them in democracy. That idea is intrinsically related to civic education and literacy.

According to Milner (2002), civic literacy is the knowledge that contributes for the individual’s choices in society. He says that civic literacy is “the knowledge and ability capacity of citizens to make sense of their political world” (Milner, 2002). In other words, it is a sort of political knowledge and social capital which enhances political participation. I consider that civic literacy and news literacy are deeply related. For example, news literacy contributes for a critical approach of how the
messages of politicians are framed by journalists and how media companies position themselves in the society. And, therefore, news literacy contributes for a greater civic literacy. Also, several scholars have already demonstrated how news literacy contributes for civic engagement, as it will be explored in greater detail at section 1.6. about news literacy outcomes.

1.5. From media literacy to news literacy

The increased attention that news literacy has been receiving in recent years extends beyond academia (Hobbs 2011; Mihailidis and Thevenin 2013; Beyerstein 2014), reaching educators, political stakeholders and international institutions. Only in 2014, UNESCO adopted the Paris Declaration on Media and Information Literacy in the Digital Era, in which they emphasize the particular importance of media and information literacy amidst the technological advances of the 21st century (UNESCO 2014). For some time, Portuguese stakeholders have also been producing recommendations about media literacy which include concerns about the information sphere (Conselho Nacional da Educação 2011). The purpose of this section is to explain what is news literacy nowadays and why does it matter so much.

Since 2016, events like Brexit in the United Kingdom and the North American political campaign for Presidential elections, led to an increased interest in news literacy. Searches in Google rose 200% in the last five years (Google Trends, 2018, May). Some argue that media, information and news literacy could be a solution for the information disorder (Leetaru, 2016; McGivney, Kasten, Haugh, & DeVito, 2017). Others sustain that news literacy may have backlashed (d. boyd, 2017, 2018) and may have to be repositioned (Paul Mihailidis & Viotty, 2017a).

Like the media literacy concept, the notion of news literacy is also not agreed upon among academics, who are still trying to come to consensus (Fromm et al. 2014). In a digitalized world, news literacy implies other kinds of literacies.
Most authors acknowledge that news literacy is about knowing where to read news (where in terms of media and sources) and how to evaluate them. In other words, news literacy entails the knowledge that allows individuals to become more critical news consumers, increasing their independent thinking about their own news consumption experience (Fleming, 2010; Loth, 2012). Panagiotou and Theodosiadou (2014) specify that the knowledge that allows individuals to raise their news consumption experience has to do with the assessment of news credibility. In that sense, news literacy “can be regarded as the ability of the person to use and critically evaluate news source information” (Panagiotou and Theodosiadou 2014: heading "Defining News Literacy”; para.4).

In an interview with Loth, Schneider enhances the idea of critical evaluation of news adding the concept of trust. “If we are going to produce citizens in the future, they’re going to have to be able to really understand how to evaluate, and critically, themselves, decide what kind of news reports they can act on and trust” (Loth, 2012: 6). Again, this idea of trust came to the attention of the mainstream public after the 2016 elections in the United States, when many so-called fake news and ideologically leaning news were published. At that time, even the North American President, Barack Obama, publicly expressed concern about the velocity with which fake news were spreading in social media (Woolf, 2016). Since then, the issue seems to have gotten even bigger with multinational digital media companies, like Google and Facebook, publicly apologizing for not having policed advertisement placement to controversial content (B. Chapman, 2017) and announcing new tools to tackle the problem of fake news (Hunt, 2017) or, in the case of Facebook’s CEO, Mark Zuckerberg, testifying in front of top political forums, like the US Senate or the European Parliament. If the announced measures are enough or if they are the most appropriated may be debatable. But that is not the point of this study. The point I argue is that news literacy is the knowledge that raises individuals’ critical thinking and helps them to detect misinformation, disinformation and mal-information, even if we are still exploring on how exactly to do that (Paul Mihailidis & Viotty, 2017a). To sum up, news literacy empowers individuals, while giving them the tools to have more critical news’ consumption experience.
Going one step further, Maskl et al. (2015) argue that news literacy refers not only to the knowledge but also to the “motivations needed to identify and engage with journalism”. Although the authors do not say so directly, they apparently assume a cognitive approach to news literacy, similarly to the one advocated by Potter, when debating the concept of media literacy (Potter, 2011).

In fact, most authors in the field of news literacy rarely identify their broader framework bluntly as cultural or cognitive. However, I believe that the debate going on in the field of media literacy between culturalist and cognitivist could easily be applied to the field of news literacy.

1.5.1. How to teach news literacy: foundational vs. experientialists

As one moves into a more elaborated definition of news literacy, one starts to find more nuances. For instance, scholars approach the issue of how news literacy can be taught in two ways. Some scholars support that news literacy education applies the generic media literacy skills to news consumption (Ashley, Maksl, & Craft, 2013; Paul Mihailidis, 2012; Vraga & Tully, 2015). Others stress the importance of learning how to produce news in order to enhance news literacy (Rosenberg, 2014). Indeed, Fromm et al. (2014) categorizes those two possible approaches to the concept of news literacy as the foundational and the experiential.

According to the foundational view, awareness and exposure would be the focus of news literacy education. For the experientialists, an active response is essential and students are required to respond and create. Underlying this second approach is the belief that students who are able to create and produce news engage more than students who do not. Hence, the foundational approach is more theoretical, while the experientialist is more practical. In a way, what is at stake between foundational view and experientialists is the pedagogy of news literacy education. In other words, they have different views on the best way to teach news
literacy. Mihailidis and Hiebert (2005) maintain that the added value of journalism educators is precisely their ability to connect theory with practice.

In fact, due to the participatory culture of today’s world wide web (Jenkins, 2009), there seems to be an increasing number of authors sustaining the experientialist approach. Guerrero and Restrepo (2012) even coined the term “prodiences” while referring to those active citizens that participate in a myriad of digital platforms. That idea resembles the term “prosumer”, first introduced in the eighties by the futuristic Alvin Toffler (1980).

According to Rosenberg (2014), teaching news production is more important now than ever. "The tools journalists have always needed in publishing are now essential for everybody. (...) The vitality of our society depends upon our ability to provide all of these ‘journalism’ tools to the general public" (Rosenberg, 2014 para. 15). So, as the World Wide Web becomes more and more participatory, one might expect that an experientialist approach to news literacy may become of greater importance.

I wholeheartedly endorse what Rosenberg claims: news literacy is becoming more and more about teaching the public how to assess sources, how to assess the distribution of the news and the re-contextualization of the news. My own view is that news literacy is becoming more and more about teaching the public (and children) to act as informed gatekeepers, whether the news they are assessing is issued by traditional journalism institutions or other sources.

1.5.2. News literacy: journalists versus media literacy educators

Another ongoing debate about the scope of news literacy is the one between researchers with a background in media literacy and education and professionals with a background in journalism. In recent years, several groups were founded in the United States with the aim of improving news literacy among young people. At least two of those groups were created by former journalists. One is held by the Stony Brook University in New York and the other is called The News Literacy Project. They
share a somehow common view about news literacy education, which is based on the traditional standards for journalism and on the practical experience of professional journalists.

The Stony Brook University project aspires to teach news literacy to all undergraduate students and not only to the ones enrolled in journalism major. According to a case study conducted by Fleming (2014), the course founded by Schneider is the “most ambitious and well-funded curricular experiments in modern journalism education and media literacy” (Fleming, 2014: 146). Schneider positions news literacy under the umbrella concept of media literacy. However, he rejects following a media literacy framework.

“He reasoned that instructional programs aimed at teaching students how to access, evaluate, analyze, and create all types of media messages were too general for news content, so he designed a curriculum based primarily on his experiences as a newspaper reporter and editor.”

(Fleming, 2014: 147)

In the same line of though, Alan Miller, president of The News Literacy Project, an educational program for middle and high school students in the United States, explains that what they do is to teach the ideal standards of journalism. In an interview with Garber (2009), he claimed that teaching journalism excellence is what will contribute to motivate children to consume news. “Teaching kids what makes good journalism and why good journalism matters (...) will make them want to consume that journalism” (Miller apud Garber, 2009: 43).

In short, both of them designed news literacy classes for a general audience of young people, applying their journalism knowledge and experience.

On the other hand, views like the ones of Schneider and Miller have been harshly criticized by one of the media literacy most recognized experts, Renee Hobbs. She argues that the Stony Brooks’ curriculum is made by a group of old
journalism professionals that are still too close to their object of study/teaching. She considers these ex-journalists’ approaches inspiring and motivational, but she also says that “telling war stories about the good ol’ days does not inherently work to develop critical thinking and communication skills among students” (Hobbs, 2010b: 5-6). Then, she also highlights that news literacy should be taught with a broader framework which would include advertising too. According to her, news literacy educators should also be teaching about issues such as competition and revenue streams. But again, in that regard, she criticizes the point of view of ex-journalists teaching news literacy. “Journalists may also have blind spots when it comes to being aware of how commercial bias affects the newsmaking process” (Hobbs, 2010b: 6).

Although I agree with Renee Hobbs up to a point, I would insist that the news literacy education can and should include that broader framework she mentions. In my view the difference between news and media literacy should be about the focus of what is being taught. In the case of news literacy, the focus would be news and not advertisement itself. In my opinion, however, that doesn’t mean that news literacy educators shouldn’t educate people about the articulation between advertisement and the news; teach them how news are paid; or what is a sponsored content, for instance. It simply means that they are not teaching about advertisement in specific.

In Portugal, despite the fact that most active journalists agree that news literacy is important, they regard it as a secondary priority mostly due to budget limitations. They say that news literacy education “is not relevant enough to increase profits” and initiative in educating children about the news should come from the schools (Brites & Pinto, 2017). This does not mean that non active journalists cannot regard news literacy education as their priority, though.

1.5.3. News literacy: a difficult search term

Another aspect that generates some confusion when studying news literacy is the term itself. The jargon and terminology used by journalists, media literacy
educators and teachers may differ, posing an added challenge to the debate (Wallace, 2014). Some authors use the exact expression that this thesis has been using so far (‘news literacy’), others prefer the term ‘news media literacy’ and many do not use either one, making it complicated. “There is no agreement on search terms to find content. ‘News literacy’ is not the right search term – critical thinking, civic learning, etc. are better” (Wallace, 2014). Although I agree that news literacy may not be the best search term while browsing the literature, especially since it is a new one; in this study I have chosen to use it because it is the closest and more precise term to the notion I aim to analyze.

In fact, although I started this literature review with several combinations including the term news literacy, soon I understood that using different search terms would contribute to gain better results, as it is shown at the beginning of this chapter. The term “news literacy” is relatively recent and it has been used specially by authors connected with journalism profession and/or media literacy.

Despite that, the use of the news in the classroom and the education about the news is not as new as the news literacy term itself. In fact, in the sixties, Celestin Freinet published the book “Le Journal Scolaire”, where he emphasized the benefits of creating a class newspaper in all grade levels, starting from kindergarten (Freinet, 1967 translation from 1974). Also, before that the American project Newspapers in Education had already started a national program to train teachers to use newspaper in the classroom in the United States (Farage, 2016). However at that time nobody was using the term “news literacy”. Even today, most of the literature that uses that term targets older youngsters – mostly teenagers or college students.

When I first started the literature review I were under the false impression that there was almost no scholarly work done targeting younger students such as the group that this thesis aims to examine. However, when I broaden the search terms I was able to find plenty of references in the literature about news literacy in connection to the younger ones. Indeed, since Freinet’s work, many educators have been teaching about the news in the classroom for a long time and some of them have been publishing scholarly articles about their interventions. However seldom do they use the term “news literacy”. And this line of articles does not always make a
clear distinction between ‘teaching with or through the news’ and ‘teaching about the news’.

Ultimately, I have committed to the use of the term ‘news literacy’ throughout this thesis because I believe that doing so contributes to clarify that what I will be analyzing is education about the news.

1.6. News literacy importance and outcomes

While explaining what news literacy is, it starts to be clearer why it is important. But the literature gives us more reasons why we should be teaching news literacy that I haven’t had the chance to address yet. So this section summarizes the arguments that are scattered throughout the literature. The outcomes of news literacy education may become noticeable in many different fields, such as civic engagement and political participation, the digital divide, mental health, participatory paradigm, knowledge and approach to news, as well as in education in general.

a) In civic engagement and political participation

Media literacy education has been regarded as an important mean to achieve greater civic engagement, greater participation in democratic societies, long before the advent of Internet and social media (Masterman, 1985, rpt. 2006). More recently, several authors have examined the relationship between news media literacy education, media use and civic engagement, especially among youth (d. boyd, 2014; M. J. Boyd, Zaff, Phelps, Weiner, & Lerner, 2011; Hobbs et al., 2013; Paul Mihailidis & Thevenin, 2013).

An example of that is the longitudinal study with adolescents from grades 8, 9 and 10 in the United States of America led by Michelle J. Boyd et al. (2011). In the
study entitled “The relationship between adolescents' news media use and civic engagement: The indirect effect of interpersonal communication with parents”, Boyd et al. (2011) demonstrate that news media use is a predictor of interpersonal communication with parents. The researchers also showed that interpersonal communication was predictive of civic engagement. “The role of media use and interpersonal communication in fostering civic development and socialization as well as implications for future research are discussed” (Boyd et al., 2011: 1167).

Another study, by Hobbs et al. (2013), also shows that positive attitudes about news, current events, reporting and journalism act as predictors of participation and engagement in the society. The researchers conducted a survey to a convenience sample of 85 high school students as part of a coursework in video production. They observed that “civic engagement is associated with positive attitudes about the news, media literacy competencies, and in-class pre-production experience” (Hobbs et al., 2013: 242).

Traditionally intertwined with the concept of civic engagement are the concepts of political participation and political knowledge. In the same way and for a long time, researchers have been looking into the relationship between news media use, media literacy and political participation. Vercelloti and Matto (2016) demonstrated that media use at school and at home not only increases news consumption, but also political knowledge.

Mihailidis and Thevenin (2013) suggest that the new media landscape provides new opportunities. In consistency with other researchers, the authors suggest that social media and the new ways how information spreads online create new opportunities for civic engagement. They also add that there are now opportunities to create new frameworks of teaching, recalling how the image of the engaged citizen now resembles to the idea of active audience. “In learning to critically read media messages, citizens are developing the abilities to gather accurate, relevant information about their society and to question authority (Mihailidis & Thevenin, 2013: 1614).

Nevertheless, in a more recent article, Mihailidis and Viotty also stress how media and news literacy have to be repositioned in these times of “partisanship and
distrust”. To better address the “phenomenon of spectacle and post-fact culture”, the authors offer four considerations: “repositioning media literacies for spreadable connectivity; repositioning media literacies as mechanisms for caring; repositioning media literacies as facilitators of “everyday” engagement; and reimagining media literacies as intentionally civic” (Mihailidis & Viotty, 2017: 11).

Another study, by Powers et al. (2016), confirms that young adults are engaging with the community and political spheres in new ways, demonstrating, for example, how now young people prefer to mention the word network instead of community. The researchers surveyed a total of 277 college students who were enrolled in a media literacy course where only a minority was journalism majors. Their findings suggested that “the ubiquity of social and digital media is changing the ways in which students are engaged in politics and their communities” (Powers et al., 2016: 10). Therefore the authors suggest that there are new avenues for media literacy educators to explore.

The relationship between news literacy, news media use, civic engagement and political participation may be more complicated though, as there may be other mediators such as family communication patterns, economic status, cognitive development or even personal interests (Alon-Tirosh & Lemish, 2014).

Also, most of these works suggesting that news literacy may result in an increase in civic engagement and political participation were based on studies about an older audience than the one this study proposes to approach. So, one could argue that this is not a relevant outcome for children. Nevertheless, education is continuous. This means that education consists in adding layers upon layers of knowledge, skills and competences. For example, the explanation that a parent gives to his/her children about where babies come from is usually not the same at the age 2, 5, 10 or 15. Therefore, understanding that civic engagement and political participations may possibly be outcomes of news literacy interventions matters not only when examining older children, but also when studying younger ones.
b) In tackling the digital divide

As it will be further developed in chapter 2, the digital divide started by being an issue about access to technology. But it soon developed as an issue about uses and affordances. One of the outcomes of news and media literacy education could be bridging down the gap.

As the 2008 OECD report on millennial learners explains, this second digital divide acts according to the pattern of the well-known Mathew effect – the sociological phenomenon which describes rich getting richer and poor getting poorer. Therefore, the report continues, “if no political intervention is made, may increase existing socio-economic divides” (OECD/CERI, 2008).

While surveying the 500 Chicago-area teenagers about their news media literacy, news consumption, news media skepticism and current events knowledge, Craft’s research group (2013) also found that news media literate teenagers tend to have at least one parent who went to college.

“Not surprising, but nonetheless important, is that teens with more educated parents tended to be more likely to be in the high literacy group. In other words, children of less educated parents don’t think as critically about their media exposure and know less about how the media system is structured than children of the more highly educated. This is especially important because respondents consume the same amount of media regardless of their parents’ education levels.”

(Craft et al., 2013: 18)

So the socio-economical and cultural environment young people have at home also influence their news literacy levels and therefore their awareness and control over the news influence.
In this sense news literacy would be relevant because it would help bring social fairness and equality to the world. It would represent a possibility like education in general to bring down the real divide and stimulate a more just democracy.

c) In mental health

Perhaps a more surprising outcome of news literacy is the one found in the medical and behavioral sciences’ literature, which expands on an idea already presented by media literacy authors. Indeed, news and media literacy has been presented by several authors as a way to mitigate the effects of exposure to negative media messages (Buckingham, 2004; Potter, 2011; Yahav, 2011). There are even studies which demonstrate how news and media literacy may contribute to mental health (Comer, Furr, Beidas, Weiner, & Kendall, 2008).

Children are generally considered a vulnerable population to the effects of violent media content because they are not fully developed cognitively (Yahav 2011). For that reason, they do seem to have a harder time dealing with non-fictional material, like the news, than with fictional material. This happens because they have no control whatsoever of those issues, sustains Buckingham in a report that reviews the literature about media literacy among children and youth:

“They may learn to control their fear of Freddy Kruger by reassuring themselves that he is merely fictional; yet such reassurances are simply not available when one is confronted with news reports about grisly serial killings or images of suffering and war in Bosnia or Rwanda.”

(Buckingham 2004: 24)

Although younger children are especially vulnerable to violent news content (Buckingham, 2003; Hobbs & Moore, 2013), older children also show signs of being
upset by violent content, when they, for example, access the Internet (Livingstone et al., 2014). In fact, as Alon-Tirosh and Lemish (2014) synthesize younger children are usually more afraid of concrete threats to themselves and their families, older children more often get concerned about abstract threats like a nuclear war.

But there is more, research within the medical and psychology field has shown that indirect exposure to traumatic media content, such as news about terrorism or school shootings may cause same of the same symptoms as direct exposure. Those symptoms include PTSD, stress and anxiety disorders (Baschnagel, Gudmundsdottir, Hawk, & Beck, 2009; Calderoni, Alderman, Silver, & Bauman, 2006; Collimore, McCabe, Carleton, & Asmundson, 2008; Molen, 2004; Molen & Voort, 1997; Moscardino, Scrimin, Capello, & Altoè, 2010; Moscardino, Scrimin, Capello, Altoè, & Axia, 2008; Otto et al., 2007; Pfefferbaum et al., 2003; Scrimin et al., 2011). Comer and Kendall (2007) call that phenomena second-hand terrorism.

And in the extension of that line of research, an intervention by Comer et al. (Comer, 2007; Comer et al., 2008) has demonstrated how providing news media literacy training to mothers contributes to help them help their children coping with fear of terrorism after the exposure to news about terrorism. In this study, the researchers showed a television news clip about the risk of future terrorism to 90 children between the ages of seven and 13 years old and their mothers. Half of them had received training about modeling, social reinforcement, psychoeducation, Socratic probing and media literacy. This group showed lower threat perception, than the control group who did not get the same kind of training. Some of the news and media literacy lessons that the researchers included in the intervention were for example: the idea of media framing and media as a representation of reality.

Nevertheless, when journalists advice parents on how they should talk with their children about news on terrorism, raising news media literacy is still often omitted (Campos, 2016).
d) In the participatory paradigm

While all of us become producers and step into a participatory culture, a new concern about a participation gap arises, as Jenkins sustains.

“There are three core flaws with the laissez-faire approach. The first is that it does not address the fundamental inequalities in young people’s access to new media technologies and the opportunities for participation they represent (what we call the participation gap).”

(Jenkins, 2009: xii)

The participation gap thus means “the unequal access to the opportunities, experiences, skills, and knowledge that will prepare youths for full participation in the world of tomorrow” (Jenkins, 2009: 15).

In this new paradigm, consumers also act as producers. Guerrero and Restrepo (2012) call this new form of public participation “prodience”. However, for an audience become prodience some new skills are needed. Several authors claim that now everybody could benefit from some journalism training (Rosenberg, 2014). Examples of skills and tools that now can be handy for the general audience relate with verifying sources, being aware of conflicts of interest, notions of defamation, copyright infringement, and privacy, among others. This idea is particularly important in a time when there is an increased interest in teaching soft skills, like critical thinking or media literacy, to the workers of tomorrow.
e) **In raising knowledge about news credibility**

If news literacy proposes to teach about news making, it would be natural to assume that news literacy education increases the knowledge about the news. Indeed, several interventions have corroborated that (Craft et al., 2013; P. Mihailidis, 2008). However, researchers were not able yet to establish how long-lasting those effects are. In other words, does the knowledge about the news that a student acquires during middle school, for instance, still be present 20 or 50 years later?

Another ongoing debate among scholars when discussing the knowledge about the news that results from news literacy’s interventions is if such experiences raise cynicism or skepticism. A study by Ashley et al. (Ashley, Poepsel, & Willis, 2010) suggests that news literacy educational approaches may affect judgments of credibility. Having conducted an experiment with 80 undergraduate journalism students, the authors end up privileging the use of the expression “healthy skepticism.” Ashley’s research team “found limited evidence that shows that learning about media ownership contributes to the lowering of credibility ratings in responding to print news stories. Media consumers may approach news content with a healthy skepticism when they know more about the authors’ commercial motivations, where the news comes from, and who is ultimately behind the production of news content” (Ashley et al., 2010: 43). On the other hand, as the authors state, “the ultimate goal is not simply to generate distrust, cynicism or apathy. The goal is to teach critical thinking skills that will help citizens evaluate media content and make judgments based on a more complete understanding of how the news is produced” (Ashley et al., 2010: 43).

This study implies the idea that we cannot simply state that news literacy raises knowledge about the news. While that seems to be true, it also seems that the way how a news literacy intervention is designed may raise healthy skepticism, cynicism or even apathy or none of those. Therefore, exploring how news literacy education may raise knowledge is an area of study which deserves further investigation.
f) In language skills and global awareness

Teachers have been writing about their news literacy interventions in the classroom and they too have been quoting some of the outcomes. Unlike most scholarly literature about news literacy, which focuses on teenagers and college aged students, teachers have been writing about their experiences in earlier levels of education too. Although I could not find any scholarly literature that specifically dealt with news literacy among seven to ten years old children, I did found several papers written by elementary school teachers describing various interventions. In most of those experiences, news literacy was not the main focus. They were using the news and news making practice to explore concepts from other disciplines such as social studies or sciences. However what most of these authors did have in common was the recognition that in order to use the news or to build a newspaper they were forced to teach news literacy first. And many of them underlined the outcomes of doing so, regardless of the discipline that first led them to news literacy education.

The benefits of learning news literacy in elementary schools, according to the interventions described by elementary teachers are several. Children can improve language and writing and reading skills (Hines, 2008; Robertson & Mahlin, 2005); they can became better readers (Frey & Fisher, 2009; Oldendorf & Calloway, 2008) they can develop inquiry, concepts understanding and engage with the topic more easily (Oldendorf & Calloway, 2008; Robertson & Mahlin, 2005); they may create empathy to global issues (Oldendorf & Calloway, 2008; Robertson & Mahlin, 2005) and they may build up citizenship literacy and lifelong learning lessons (Oldendorf & Calloway, 2008).

Summing up, news literacy is a complex concept about the understanding and evaluation of news, which is related with several domains of life such as
technology and civic life. Although the idea of news literacy is not new, the use of that expression is relatively new. News literacy education may produce many different kinds of outcomes. When all outcomes are combined, they contribute to raise better citizens, more prepared for the world around them and more prepared for the demands of the information society.
2. Children and the media

2.1. Utopian versus dystopian views of the relationship between children and the media

Research concerning young people’s relationship with the media has traditionally been closer to a technophobic stance. This means it has often seen more harm than benefits to young people in the use of technology. Sometimes these concerns assume a moral panic approach. What some could call caution, others pessimism, isn’t new. When new technologies emerge, the fear and distress about their uses has often been greater than the recognition about its benefits. There is even a word for that: luddite.

Indeed, some people think that the term technophobic dates back to the Industrial Revolution’s time when a group of textile workers, called luddites destroyed machinery as a form of protest (Jones, 2013). Others would argue that the luddites weren’t actually against technology, rather against the labour conditions they were subjected to (Binfield, 2004). Despite the true account that was behind the origin of the term luddite, this word ended up getting into our language as a derogatory term to define someone against new technology (Walter, 2008).

The concerns of social scientists, who analyzed the relationship between youngsters and the media, at the beginning, often included issues such as the exposure to content of a violent and sexual nature. Now, most worries have to do with the amount of screen exposure and its health consequences like rising obesity (Watkins, 2009). Other problems to which researchers have been paying attention, and that we often find in today’s mainstream media, are issues like cyberbullying or the exposure to sexual predators.
However, technology is not necessarily good or bad, but it is present almost everywhere, as Conniff (2011) describes.

"By contrast, our technology is as nebulous as “the cloud,” that Web-based limbo where our digital thoughts increasingly go to spend eternity. It’s as liquid as the chemical contaminants our infants suck down with their mothers’ milk and as ubiquitous as the genetically modified crops in our gas tanks and on our dinner plates."

(Conniff, 2011: para. 23)

It is usually only after people become accustomed to the use of new technologies that more positive perspectives appear. We witnessed that, for example, when people realized that television was not going to replace the radio.

Ironically, Conniff (2011) describes how contemporary protests against technology often assume a technological form:

"We worry about whether violent computer games are warping our children, then decry them by tweet, text or Facebook post. (...) College students take out their earbuds to discuss how technology dominates their lives. But when a class ends, Loyola University of Chicago professor Steven E. Jones notes, their cellphones all come to life, screens glowing in front of their faces, ‘and they migrate across the lawns like giant schools of cyborg jellyfish’.”

(Conniff, 2011: para. 3)

In the case of the research about children and the new media like the Internet, the turn from dystopian to utopian occurred around the year 2008. It was then that an important shift occurred in how some researchers framed their studies about young people and the media. At that time, new studies came up extolling the
virtues of media use among the young (W. L. Bennett, 2008; Ito, 2010; S. C. Watkins, 2009).

In the book “Hanging Out, Messing Around and Geeking Out”, Ito et al. (2010) conducted a three-year ethnographic study about how teenagers engaged with technology. They paid special attention to social and recreational uses in a multitude of settings, like at home, in after-school programs and in online spaces. This study is well-known for its in-depth description of the diverse ways in which young people use the Internet.

Published around the same time, the book “The Young and the Digital: What the Migration to Social-network Sites, Games, and Anytime, Anywhere Media Means for Our Future” by Craig Watkins (2009) presents consistent findings. The author argues that there is no compelling evidence showing that teens prefer virtual and online contacts to real people or that they have become unskilled in real contact. This professor from The University of Texas at Austin maintains that “young people use the Web as a tool to engage and maintain real-world friendships and connections” (Watkins, 2009: 59). He also maintains that being connected all the time everywhere expands the sense of place and it reshapes the sense of community. Recognizing that technology may also pull people apart, nonetheless he emphasizes the power that technology has in bringing people closer, like other “space-transcending technologies” such as the car or the telephone.

Watkins also expands the notion of “third place”, introduced by Oldenburg (1998) and developed by Putnam (2001; 2015). For urban sociologists, the first place is home, the second is work and the third is the public spaces where community life exists. According to Oldenburg’s point of view, the third places must be free or inexpensive, accessible and welcoming spaces where regular and new people go to regularly.

Watkins argues that teenagers used to congregate in places like that. In particular, he stands that young people have always looked for spaces away from the adults’ eyes, like shopping malls, parking lots, theatres, parks or coffeehouses. He also argues that due to the fact that teens now have a more protected and restricted life, they lack those spaces in the real life. So Watkins holds that “one of the main
factors driving young people to online sites is the lack of places in the off-line world for them to regularly congregate and truly call their own” (Watkins, 2009: 58).

Lance Bennett (2008), author of “Civic Life Online: Learning How Digital Media Can Engage Youth”, also believes that most of young people go online with social and entertainment goals. However, he also makes the point that youth is not a homogenous mass of people. While examining the relationship between young people and the civic and political spheres in the online world, he says that there are individuals who are more- or less- engaged individuals with those spheres, although most may seem uninterested in such matters. He argues that sometimes youngsters arrive at those spheres via non conventional paths. In other words, sometimes young people engage with politics through entertainment (W. Lance Bennett, 2008).

Technology is part of young people’s lives. They spend a big portion of their time connected to it (Mascheroni & Cuman, 2014), like adults also do. What authors like Ito, Watkins or Bennett have in common is their understanding of how being connected all the time may not necessarily be a bad thing in itself. In the end it all comes down to the uses that individuals are making, or not making, of the Internet. And, I might add, their levels of media literacy. So, the affordances and constraints of media use may differ among young people. While media exposure and participation may increase the risks, media education could pass along some skills and competences that would protect and empower young people from such risks. That brings us to the next topic: protectionist versus empowerment views of media education.

2.2. Protecting versus empowering young people

At first, media literacy research and interventions were elaborated under that dystopian framework. Thus, media literacy was often presented as a mean to protect teens and children from the harmful effects of the media. In particularly, in the

---

2 This section partially reproduces a paper presented at the 2nd International Media Literacy Research Symposium (Campos, 2018c).
1980’s, education about the media was mostly designed to protect youngsters from the negative content of television (Gutiérrez & Tyner, 2012).

Then, when the scholarly debate started to evolve from a panicking view to a more positive one, media literacy interventions also started to assume a more empowering tone instead of a protectionist one. An example of that are the studies relating media literacy with civic engagement (M. J. Boyd et al., 2011; Hobbs et al., 2013).

Because the use of the expression news literacy is much more recent than the use of the expression media literacy, most of its discourse was already developed in a time that the debate had moved from a more panicking stance to more balanced and/or optimistic views. Possibly for that reason, most news literacy educational interventions were designed more to empower than to protect young people. There are exception to that, of course, like for example the advices given by news outlets to parents teaching them how to discuss news about terrorism or school shootings (Campos, 2016). Even so, news literacy education has been more about empowering than protection, at least until 2017. After 2016, the US Presidential campaigns and the debate about fake news may be contributing to a new shift (d. boyd, 2017; Paul Mihailidis & Viotty, 2017a).

An example of those empowering views is the empirical study by Hobbs, Donnelly and Moen (2013) about news literacy and civic engagement, entitled “Learning to engage: how positive attitudes about the news, media literacy, and video production contribute to adolescent civic engagement”. In this intervention the authors demonstrate how news and media literacy education can empower students about their civic engagement (Hobbs et al., 2013).

However, looking into media and news literacy as empowering or protecting raises some concerns. David Buckingham, for instance, reflects critically on the distinction between empowering and protectionists perspectives. In 2009, he warned about the move from protectionism to empowerment approaches, especially in the political discourse. He said that many people were claiming that move as a democratic one but he contradicted them, saying that it was not a democratic move, but a demagogic strategy. He suggested that the move from
protecting to empowering perspective could be, in fact, a demagogic neo-liberal strategy that comes with the deregulation of the media and technology market:

"In this context, it would be possible to interpret media literacy as a familiar neo-liberal strategy. In a deregulated, market-driven economy, the argument goes, people need to be responsible for their own behavior as consumers. Rather than looking to the government to protect them from the negative aspects of market forces, they need to learn to protect themselves. What does it matter if Rupert Murdoch owns the media, if we are all wise and critical consumers? And so media literacy becomes part of a strategy of creating well-behaved, self-regulating “citizen-consumers” (to use Ofcom’s term): it reflects a shift from public regulation to individual self-regulation that we can see in many other areas of modern social policy.

Of course, this comes packaged as a democratic move – a move away from protectionism and towards empowerment. But it is also an individualizing move: it seems to be based on a view of media literacy as a personal attribute, rather than as a social practice. Indeed, it could be seen to place a burden on individuals that they might not necessarily be disposed or able to cope with. (...) And while it gives people responsibilities, it does not also extend their rights: it positions them as consumers rather than as citizens”

(Buckingham, 2009: 16-17)

Today, Buckingham’s cautionary discourse seems to be even more relevant. In 2016, many people were caught off guard by the misinformation, disinformation and mal-information spread online, during the UK Brexit and the North American presidential campaign. In the past, some groups talked about news literacy as a way of empowering, of increasing political participation and civic engagement. I argue that news literacy should also be protecting people by making them less vulnerable to being manipulated by fake, distorted or manipulative news. I argue that news
literacy has such an important role in empowering the “prosumers” of today as in protecting them, especially when discussing vulnerable populations such as teenagers and children. Overall, I would sustain that it would be more adequate to find equilibrium between both approaches, also because too much protectionism may increase cynicism instead of raising a healthy skepticism towards the news.

Another important aspect to consider is how scholars describe young people as an heterogeneous group (d. boyd, 2014). Indeed, several authors claim that young people’s relation with the media, the society and the news is diverse. People may look at young people as savy and knowledgeable users of technology. But danah boyd (2014) shows that that is not always the case. danah boyd is a social media scholar, principal researcher at Microsoft, founder of the research institute Data and Society and visiting professor at the New York University. She argues that young people have all sorts of relationship with the media.

“I interviewed teens who used programming scripts to build complex websites. I also talked with teens who didn’t know the difference between a web browser and the internet. I encountered teens who had nuanced understandings of different kinds of web content and helped create and spread internet culture via popular memes. I also met teens who couldn’t recognize spam”

(d. boyd, 2014: 177-178)

So, on the contrary to the common saying, young people are not born knowing everything there is to know about technology. I agree with the view that there is a multitude of people and a multitude of relations with the media, the society and the news. And if we consider that young people are not a homogeneous mass, then we have to take into account that their educational needs in terms of news literacy may also vary. Therefore I argue that offering them just an empowering or a protectionist approach could be insufficient. I agree with Renee
Hobbs’ (2010a) idea that empowering and protectionist approaches are fundamentally linked together. Furthermore, I recognize that there may be a place for a protectionist approach in news literacy education as there is a place for an empowering one.

2.3. The ‘digital natives’ myth

This debate about the heterogeneity of young people’s uses of technology and their different knowledge levels is also related with the idea of the digital native. Many people still assume that the idea of the digital immigrant and the digital native, coined by Prensky (2001; 2001) continues to be valid. However, among scholars, that view has been long contested (Jenkins, 2007). Young people may use technology all the time, yet that doesn’t necessarily make them savvy-users.

Having surveyed 855 children and interviewed 46, Facer and Furlong’s (2001) research showed, by the turn of the century, that there were children that owned the computer but did not liked to use it and others who did not owned it but liked to use it and would find ways to use it, such as going to friends’ houses. Their explanation: young people are not necessarily “cyberkids”, many of them live at the margins of the information revolution. Only because they are young does not necessarily mean they like technology and that they learn it easier than adults (Facer & Furlong, 2001).

danah boyd also claims that the amount of exposure does not automatically bring knowledge, as it was already mentioned. Therefore, she sustains that just because young people were born in a digital world doesn’t make them knowledgeable of technology. Similarly, just because adults were already here when the digital world became mainstream, does not mean they know less or that they do not have anything to teach:
“It is dangerous to assume that youth are automatically informed. It is also naïve to assume that so-called digital immigrants have nothing to offer. Even those who are afraid of technology can offer valuable critical perspective. Neither teens nor adults are monolithic, and there is no magical relation between skills and age. Whether in school or in informal settings, youth need opportunities to develop the skills and knowledge to engage with contemporary technology effectively and meaningfully. Becoming literate in a networked age requires hard work, regardless of age.”

(d. boyd, 2014: 177)

Along the same lines, news literacy education would be one way that “immigrants” could contribute to “natives” understanding of the construction of news. Being always connected, reading and sharing the news on Facebook, Reddit or Twitter, does not necessarily make youngsters knowledgeable of the news values, credibility or manipulation, for instance. On the contrary, with low news literacy levels and high news consumption and ‘shareability’ levels, they may even be more easily used as puppets by propaganda models.

2.4. Inequality in access and the gap issue

The concept of the digital divide has been evolving over time. At first it was mostly framed as a matter of unequal access to technology. Significant amount of research about access was done throughout the nineties. Soon, scholars understood that access was not enough to bridge down the divide. Nowadays when discussing the digital divide, more complex notions have emerged, such as inequality in participation and uses. That is often called the second-level digital divide.

Researchers started to focus the studies about the digital divide in a multitude of topics within the type and the context of access to the Internet. Their research questions pointed to several directions. How do people log in to the
Internet? Is it through dial up connection, broadband, mobile, satellite...? Where do they access the Internet? Is it at home; at work; or at a public space, like schools, libraries or Internet cafés? Are they connected anytime, anywhere? Does the access to the Internet and its use influence people’s opportunities in their lives? (DiMaggio, Hargittai, Celeste, & Shafer, 2001; Eszter & Amanda, 2008).

In the specific case of the studies about youngsters’ access to technology, researchers have also been looking to where the computer is located at home and how children use it. Is the computer at a common space, like the living room or at a private one, such as the bedroom? And do children use the computer by themselves or with the guidance of an adult? How is the parental mediation conducted and what technological restrictions are or are not being used? (Behrman & all, 2000; Haddon, Livingstone, & EU Kids Online network, 2012; Livingstone & Bovill, 2001).

At first, by the late nineties, parents believed that the Internet would help their children to do their homework and to discover the world. They regarded it as an educational tool. Therefore they considered that children who did not had access were at a disadvantage (Behrman & all, 2000). That probably explains the tremendous speed with which the technology proliferated in American households with children from two to 17 years old. In only five years, between 1996 and 2000, the number of those households with a computer jumped from 48% to 70% and the number of those households with connection to the Internet grew from 15% to 52%, according to the report The Future of Children (Behrman & all, 2000).

In 1997, there were 88.670 Portuguese subscribers of Internet access. In 2002 the number of Internet access subscribers in Portugal had risen to 664,670. There were at that moment 26% Portuguese households with a computer and 15% had Internet access, according to data from the Portuguese National Institute of Statistic (INE) and the Portuguese Authority for Communications (ANACOM) compiled by Pordata (2017).

Behrman et all (2000) sustain that, in the American case at least, that proliferation did not happen with the same velocity among low-income families. Low-income families were also less likely to have access to the Internet even when they were able to afford a computer (Behrman & all, 2000). A similar situation may
have occurred in Portugal. The issue was about the cost of access, but it could also have been about education and culture. At this point the discussion about the digital divide in terms of access was scrutinized in a myriad of perspectives: class, geography within the same country and among societies (urban/rural; North/South) and so on. Many policy initiatives tried to tackle the computer use problem with the access to the hardware. For example, in Portugal, the Magalhães PC from the “E-Escolinha” initiative is probably one of the most known initiatives of the kind. It was offered free of charge to children from the poorest families and at a very affordable cost to others.

However, as more and more people started to have access to the Internet, researchers began to look into other kinds of issues while discussing the digital divide. Soon it was already clear that the issue was not only about access, but about the kind of uses people were doing as well. While family income was key to have access to a computer at home, by the year 2000 almost all American children already had access to computers at school (Behrman & all, 2000). Also, the policy of one-computer per child adopted by several countries, like Magalhães in Portugal, also put in evidence that the divide was not only about access. After all, now there were people that had a PC at home but continued not to use it. Hence, in a few years, the biggest issue in terms of inequalities was no longer about if people were logged in or not or if they had a computer or not but rather if they actually were participating or not, and more importantly, how were they engaging with the technology.

Indeed, as devices evolved and mobile access to the Internet spread among children, it became even clearer that the divide was a more complex issue. Nowadays most children in the US and in most European countries are connected to the Internet through a mobile device (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013; Mascheroni & Cuman, 2014).

Livingstone and Helsper (2007) argue that the explanations for the digital divide among children have to be different from the ones among adults, because the usage of the Internet varies by age. Their survey of UK 9-19-year-olds revealed that the percentage of non-users among children (3%) is much lower than among parents.
(22%). So they argue that instead of a dichotomist look into the divide, one should consider the existence of a continuum or gradations on the digital inclusion.

Their survey also confirms one obvious gender and class inequality among the children who have access to the Internet: "boys use the internet more often than girls, have been online for longer, and spend longer online" (Livingstone & Helsper, 2007: 676). Again, they point out that research today is no longer just looking to who is online or not, but what uses people are doing while they are connected. Indeed this survey also shows differences by age concerning the uses. Younger children (9-11 and 12-15) biggest use of the Internet is to play games and to do school work. But older kids spend more time on music downloads (16-17 and 18-19) and looking for information on careers / further education (16-17) and emailing (18-19).

“We conclude that providing home access can alleviate but not overcome the relative disadvantage of coming from a low SES household in terms of the breadth of internet use, thus warranting continued attention to socioeconomic disadvantage in relation to internet use. The findings also show how age and gender shape and define the opportunities taken up by young people”

(Livingstone & Helsper, 2007: 692).

More than ten years after Facer and Furlong’s survey, this European survey on mobile access also shows that the number of children accessing the Internet on a daily basis through these devices is lower than the number of kids who own those kinds of devices (Mascheroni & Cuman, 2014).

That discrepancy suggests again that owning the device is not the only condition to begin using it. Why aren’t these youngsters using the device they own to go online on a regular basis? Why are there differences in use by gender? These are some of the questions still to be better explored. In fact, more up to date research would be necessary to understand exactly why non users continue to exist nowadays (Livingstone & Helsper, 2007).
But one might consider that raising media literacy could contribute to overturn that discrepancy. The argument is simple: if we raise people’s knowledge and skills about the media, then they may feel more inclined to use the media. Even if media literacy education ends up having the reverse effect of raising skepticism towards the media, consumption may still increase as it has been demonstrated in the case of news literacy interventions (Ashley et al., 2010).

Although most authors conclude that education would be an important step to mitigate the divides, the mere existence of the gap is not fully consensual. In 2001, Compaine published a book where he wrote a chapter questioning if the information gap was real or a myth. At that time he argued that the need to address the information gap might or might not be considered superfluous in terms of public policies (Compaine, 2001). And yet most authors would argue otherwise (Hobbs, 1998; Jenkins, 2009; P. Mihailidis, 2012).

In a participatory culture, where users also become producers, the divide issue is also a matter of a participatory gap, meaning “the unequal access to the opportunities, experiences, skills, and knowledge that will prepare youths for full participation in the world of tomorrow” (Jenkins, 2009: 15).

While discussing inequalities concerning the digital sphere, one could ask: Does the online world create inequalities? Or is the online world an opportunity to bridge down the existing inequalities of the offline world?

Related to the issue of usage and engagement or participation, emerges the idea of teaching literacies as a way to enrich the Internet experience and as a way to mitigate the divide. Underneath lays the idea that certain literacies or competences are necessary in order to one have an equal chance to participate. That may be true especially when consumers turn themselves into producers and makers. Then the necessary skills are not only about tools, but also about social interaction, design, information and production, and so on.

The digital divide debate often emerges associated with the literacy’s education debate. Even the Future of Children report from 2000, sponsored by The
David and Lucile Packard Foundation, already contained recommendations about education, teachers and parent’s awareness raising and so on (Behrman & all, 2000).

Information can be seen as a social good or one of the biggest commodities of our times (Goulding, 2001). In that sense, the information gap may be one new form of social exclusion of our days. Therefore skills development would be necessary not only to get jobs (Facer & Furlong, 2001; Tufecki, 2012), but also to foster civic engagement and political participation (W. Lance Bennett, 2008; M. J. Boyd et al., 2011; Culver & Jacobson, 2012; Hobbs et al., 2013). But then as Putnam puts it the main issue may be the opportunity gap. In a broader look of the contemporary society, Putnam not only sustains a better training of teachers, but also the professional coaching of low income parents (Robert Putnam, 2015). In conclusion, for the ones, who, like this researcher strive for a more equal and just society, understanding media and news literacy as a way to mitigate the digital divide is fundamental.
CHAPTER 3

3. Children and news literacy

3.1. Seven to ten year old children and the news

The cognitive development theory tells us that it is between the age of 13 and adulthood that individuals develop the abstract thinking and start to comprehend the world with a grey scale, instead of just black and white (Piaget, 1975). Those two aspects may contribute to further the understanding of news. Thus, it is only natural that schools have been developing journalism and news literacy programs and initiatives for teenagers and beyond. Likewise it seems natural that researchers have been devoting a closer look to people at those ages.

However the cognitive development theory also tells us that it is at the age of seven that children start to understand other’s point of view. That happens because they just stepped into the concrete operational stage. That also means that they start to understand logic. Perhaps more importantly between the age of seven and eleven years old they care about what other’s think and they are eager to get good responses from others (Piaget, 1975). Therefore between seven and eleven years old they also seemed equipped to start learning about the news making process. Actually, there are even lessons that have been tested at the level of early childhood education (Rantala, 2011). Although at the preoperational stage children seem to have some difficulties in seeing things with a different perspective, it is at that time that they manifest interest in the ‘why’ and ‘howcome’ questions. One might think that at that time they may also have an interest in learning how the news is made. Indeed, at least two authors within the field of children’s literature have already made non fiction picture books which explain what news is that to young children (Gibbons, 1987; Leedy, 1990). The museum about the news at Washington, called
the Newseum has included a few digital games for very young children too (Digital Stemworks, 2013), as we will examine later on.

What I understand from the cognitive developmental theory is that children at the ages seven to eleven exhibit some characteristics which would allow them to understand some news literacy concepts. I argue that there are many different kinds of news literacy lessons that can be given and some of those lessons could be taught to young children, specifically from seven to ten years old.

Scholarly literature also backs up the idea that there are indeed news literacy lessons that can be taught to very young children. In the book “Media Literacy”, Potter (2011) applies the cognitive theory to media literacy and presents a chart of knowledge acquisition by ages. According to that chart, at ages five to nine, children are in the "developing skepticism" stage as he calls it. According to the cognitivist, that includes the following characteristics:

- greater understanding of advertisement discourse characteristics by starting to “discount claims made in ads” (Potter, 2011: 22-24);

- greater awareness of the “differences between likes and dislikes for shows, characters, and actions” (Potter, 2011: 22-24)

- greater consciousness of characters characteristics: “make fun of certain characters even through those characters are not presented as foils in their shows” (Potter, 2011: 22-24)

The “narrative acquisition” should have been learned already between ages three and five. So, it is expected that even before reaching seven years old children have already learned to distinguish fact from fiction; ads from entertainment; real from make believe. They have also learned about "motive-action-consequence" (Potter, 2011: 22-24).

Indeed, several studies have shown that most children learn that the news have a real and non fictional nature before the age of seven years old (Fitch, Huston, & Wright, 1993). Even so, children around six and seven years old prefer to learn how cartoons are made than to learn how live action images are produced (Hobbs & Moore, 2013). Yet, some children around that age may not fully realize that
television programs are constructed (Dorr, 1983) and even less, I would say, how that construction is made.

Buckingham (2003) adds that by middle childhood, what he considers to be between age eight and nine, children exhibit a greater awareness about producers’ intent and a bigger curiosity on how programs are made:

“Children are becoming more aware of the possible motivations of television producers – and indeed often cynical about them. For example, they will discuss how the narrative of a soap opera is organized in an attempt to keep us watching, or how advertisements attempt to persuade us to buy (Buckingham, 1993a). They are also keenly interested in how programs are produced, and (by the age ten or eleven) are offering increasingly ‘critical’ judgments about the quality of acting or the realism of the décor (Davies, 1997; Dorr, 1983; Hodge and Trip, 1986). In both respects, they are much more likely to regard television as an artifact, and much less likely to see it as simply a ‘slice of life’.”

(Buckingham, 2003: 43)

Although much of what Buckingham sums up in this excerpt refers to the children’s awareness of TV production in the fiction realm, other studies explored the specific domain of the news and reach similar conclusions. For instance, a cross-cultural study by Dafna Lemish (1997) about kindergartners’ understanding of television demonstrates that children are aware of the news’ functions and the purpose of commercials. Her study also confirmed that children learn to distinguish between fantasy and reality at that time. Lemish’s work also explores how the cultural environment influences children’s perception of the news. Having compared American and Israeli children she found out that Israeli had “much more knowledge about the news and its role in the society” (Dafna Lemish, 1997: 109).

That is related to a field of research called the news socialization which is linked to the discussion of news. In fact, sometimes children are around when adults
discuss current events and that may contribute for their understanding of news and to their news consumption habits. A study by York and Scholl (2015) shows how observing parents reading the news and participating in the family’s news discussions contributes to news consumption with long-term effects into adulthood. Then, after 12 years old, parental news consumption modeling continues to be an important factor, even if today parents are only consuming news on a mobile. In fact, research shows that the choice of the device used to consume the news often coincides between parents and their children (Edgerly, Thorson, Thorson, Vraga, & Bode, 2017). Most importantly, even younger children are often around when the newscast is on and they do recall what they hear and see on the news (Molen & Voort, 1997). Additionally, research with Portuguese children suggests that parents’ news consumption and socialization is more influential to children’s news habits than media education at school (Silveira, 2016).

Children are often exposed to the news whether they lack the preparation to understand them or not, whether the news is appropriate for them or not. And yet, most authors sustain that they may be more susceptible to the exposure of violent content which has a non-fictional nature than to fantasy violence (Buckingham, 2009; Hobbs & Moore, 2013; Yahav, 2011). Considering that it is precisely between six and seven years old that children are most frightened of real news content, Hobbs and Moore (2013) say: “What a difference a few years can make”. Violent content on the Internet is the second thing that most bothers children in Europe, according to data from 2014 (Haddon et al., 2014).

There are several articles in the mainstream media which tell parents how they should talk with their children about frightening news, like terrorism coverage, for example (Campos, 2016). The website Common Sense Media presents those advices by age. For parents who have younger children the strongest advice is to restrict their access to the news. But as that is not always possible to control, Common Sense Media also advises parents of younger children to explain them how journalists present a constructed frame of the reality in order to help them cope with their fears (Knorr, 2014). Teaching them that is to improve their news literacy.
Across Europe, children are going online at younger ages and in more diverse ways (Haddon et al., 2014; OfCom, 2017). The number of European children using the Internet to consume the news has also raised from 2010 to 2014, from 7% to 18% (Haddon et al., 2014). However data about children’s interest in the news differs. An OfCom (2017) report states that half of 12-15 year old British children are interested in the news; and, when “prompted with a broad range of news categories”, almost all of them become interested in the news. Similar results, from a report funded by Knight Foundation, show that young American people consume a wide range of news through a variety of platforms and lengths. "The findings in this report challenge the pervasive myth that young people don’t care about the news". (Madden et al., 2017: 8). Nevertheless, another report, also supported by the United Kingdom communications regulator OfCom, states that most children are not engaged with the news content, although most of them do use the Internet to learn new things and to “proactively” explore new interests (Waldie, Foylan, Wootton, Holland, & Ionno, 2017).

On the contrary to the common belief that children find news boring or that they are not mature enough to understand the news, Alon-Tirosh and Lemish (2014) also demonstrate that not only children value the news as important, but they also “desire to be informed on core national news issues” (Alon-Tirosh & Lemish, 2014: 108). Additionally, they say, children would like to have access to content which would frame the news with a positive tone (without the “scary and gory elements”) and, at the same time, without being condescending, nor infantilizing. In other words, children “wish to be treated in a serious and authoritative manner” (Alon-Tirosh & Lemish, 2014: 108).

In Portugal, the percentage of children between nine and twelve years old using the Internet to consume the news varies between 6% (boys) and 8% (girls); that number raises to 20% when they also own a tablet (Simões et al., 2014). Sixty two per cent of Portuguese children between six and eight years old have access to the Internet (Ponte et al., 2018). “The activity they engage more with their parents is searching for information” (Ponte, Simões, Batista, Jorge, & Sofia, 2017).
Additionally, and according to the report that describes children living “between screens”, half of them plays videogames (Ponte et al., 2017).

I agree with the idea that adults can be an important facilitator of knowledge and competence’s acquisition, as Vygotsky (1999) had already suggested at the beginning of the 20th century. One of Vygotsky’s main ideas was that the development of the child may differ according to the cultural background context, like Lemish’s (1997) about American and Israeli children also shows. Apart from the criticism to Vygotsky’s work that emerged in the 80’s and 90’s - and going back to his idea of the zone of proximal development and applying it to the education about the news - we may consider adult’s may represent an important role helping the children better understand a topic that may be to difficult for they to comprehend completely on their own. Vygostky’s taught us that an adult can provide tools, models, guidance, interaction and encouragement. He also says that the adult can help the child develop a bigger task into smaller tasks while providing the necessary support in a learning situation. Then adults can guide children in a new situation transferring familiar knowledge (Vygotsky, 1999).

Several articles written by educators provide ample evidence how projects which teach news literacy in the classroom are important, necessary and can be successful among children of targeted ages of this study (Frey & Fisher, 2009; Hines, 2008; Robertson & Mahlin, 2005).

In the United States, the National Assessment of Educational Progress literacy tests, that have been administered in as early as fourth grade, when children are around nine/ten years old, uses news texts as a source to assess reading skills.

Also PIRLS reading framework takes into consideration the news text. PIRLS is a literacy assessment made to fourth-graders of 60 countries, similar to the usually more widely known PISA tests from OECD. While PISA tests assess 15-year-olds, PIRLS assess forth-graders, who are usually around nine/ten years old.
“In order to acquire knowledge of the world and themselves, readers can learn from a host of text types. Any given text type can take many forms and combinations of forms. These include traditional written forms, such as books, magazines, documents, and newspapers, as well as digital forms such as email, text messaging, and Internet websites where text often is integrated with various multimedia formats (Leu, Kinzer, Coiro, & Cammack, 2004; Leu, Kinzer, Coiro, Castek, & Henry, 2013; Rosell & Pahl, 2010; Reuda, 2013).”

(Mullis & Martin, 2015: 12)

In Portuguese national curriculum, the news text is introduced in the reading comprehension goals at third grade. At third and fourth grade, usually around eight and nine years old, children attending Portuguese schools are also expected to learn how to search and gather information and how to write informative texts (Buescu et al., 2015). Even in more advanced school stages, the approach to news literacy education foreseen by Portuguese school curricula is mostly in terms of narrative (how to write a lead, a title, and so on), and less on critical thinking. However, also in Portugal, there is the awareness that many other topics are recommended, as at least it is sustained by the educational guide for media and education in kindergarten, elementary, middle and high school levels, published in Portugal (Pereira et al., 2014). This guide describes the general and specific goals that can be taught to children in all school grades in regard to twelve topics of media literacy. Some of those are specifically related with the news and specifically target elementary school aged children, as for example:

“-understand that media present events with different points of view (tell a story from different points of view);

-learn to recognize the differences and similarities in news, discussing the approaches (titles, images, characters...);

-be able to identify the broader genres of programs, such as news, fiction, and entertainment;
-participate/cooperate in the school newspaper or newsmagazine;
understand the role of some media professionals (visit, interview);
-communicate news to local media”

(Pereira et al., 2014: 35 and 37)

Additionally, there are also a few digital projects, at least in English language, to teach young children about news literacy (Digital Stemworks, 2013; Krantz, 2012). In Portugal, there is also a CD ROM that explains teachers and older students (from eleven to sixteen years old) how to make a school newspaper (Tomé, Miranda, & Menezes, 2006). However, scholarly literature which studies the digital projects to teach news literacy for children from seven to ten years old continues to be scarce.

3.2. Formal, non-formal and informal learning

It is often said that the news are everywhere and they can be accessed almost anytime. Thus, news consumption has a ubiquitous nature. Accordingly, I believe that news literacy education should not only be addressed in a formal setting but also in a non-formal and in an informal one.

Education in a formal setting is the kind of education that occurs in most schools and universities, where there is an educative intention, that often derives from a hierarchically structured curriculum; and there is a grading system organized in time (Smith, 2002). Non-formal and informal concepts of education started to emerge in the sixties during a world educational crisis, when some institutions recognized that school curricula were often unsuitable and evolved too slowly, recalls Fordham (1993):

“The conclusion was that formal educational systems had adapted too slowly to the socio-economic changes around them and that they were held
back not only by their own conservatism, but also by the inertia of societies themselves... It was from this point of departure that planners and economists in the World Bank began to make a distinction between informal, non-formal and formal education.”

(Fordham, 1993: 2)

Non-formal education also has an educative intent and it also consists of organized activities like in formal education, but it often occurs outside the classroom in a non-traditional setting (Smith, 2002) such as a library workshop or at a scouts’ camp, for example.

Whereas informal education is often described as the one that happens with all individuals throughout life, with the family and peers, at the playground or with the media. It is through this process that individuals acquire attitudes, values, skills and knowledge (Smith, 2002). Studies about children and technology recognize the value in peer to peer teaching (Livingstone & Haddon, 2009). In Portuguese language, there is the saying that children are like sponges because they are always learning.

Several authors sustain that news media literacy education should be made in all learning environments (Buckingham, 2009; Renee Hobbs, 2010a). Vraga and Truly emphasize a complementary nature, claiming that informal education strengthens formal education. “If students receive media literacy education in their classrooms, small ‘injections’ of media literacy in their lives could help these individuals apply critical thinking skills more regularly, thus extending the effectiveness of their education” (Vraga & Tully, 2015: 11).

However, very little is known about what happens out of the classroom (Vraga & Tully, 2015). In fact, in the case of news literacy, much more research has been published about formal settings than informal. That is one of the reasons this literature review also contains much more information about interventions made in schools, rather than at home. News literacy education in informal settings, and especially, in digital platforms still is underexplored.
3.3. Constraints to teaching news literacy in the classroom

The news has some specific characteristics that may pose a challenge for some teachers to include them in their lesson plans. While news literacy education does not necessarily need to follow the fast news agenda, it is more interesting when news literacy education is presented to students with current examples. After all, news is about the present and not the past. However, the speed and unpredictability of news production as well as the controversial nature of some news events makes it particularly difficult for teachers who we often hear complaining of the lack of time to prepare lessons (Hobbs, 2009; Moore, 2013; Powers, 2010).

Scholars usually present nine main obstacles to teaching about the news in a classroom with young children. Those are:

1. lack of teachers’ media training and preparation for the controversial aspect of some news stories (Hobbs, 2009; Tomé & Abreu, 2016);

2. lack of time (Tomé & Abreu, 2016) and difficulty dealing with the speed of breaking news that does not allow much time for teachers to prepare lessons (Hobbs, 2009; Moore, 2013);

3. teachers dislike of technology (Powers, 2010);

4. lack of resources at school (Powers, 2010; Tomé & Abreu, 2016),

5. lack of technical support at schools even when teachers bring their own devices (Tomé & Abreu, 2016);

6. difficulty in dealing with the unpredictable nature of the classroom discussions about the news and the possible galvanizing nature of such debates (Hobbs, 2009; Moore, 2013);

7. difficulty in dealing with the unpredictable outcome of the ongoing news events (Hobbs, 2009);
8. ideological and political nature of news stories and the fear of being accused of handling the issues in an ideological leaning way (Hobbs, 2009; Moore, 2013; Powers, 2010);

9. difficulty dealing with the appropriateness of news writing - most news story pieces writing is far above children’s reading levels (Frey & Fisher, 2009).

Although all these nine quoted constraints were presented in a context of formal education, and not having found literature that specifically addressed the constraints of educating about the news in an informal setting, one can assume that some of these constraints can also occur in an informal setting of education.

Some parents, for example, may be more comfortable to discuss the ideological nature of some news than some teachers. However, some parents may also feel challenged by the unpredictable nature of the ongoing news events. One could consider that for some parents it may be difficult to talk about ongoing news events with a dramatic nature when they still do not know if they will have a happy ending or not. Also, sometimes, parents may still be trying to figure out how themselves cope with traumatic news stories. Indeed, parents, like teachers, may also lack preparation to discuss the news. In other words, some parents may also lack news literacy, and they may not know what is and what is not appropriate to teach about the news to their children, according to their age level.

3.4. News literacy interventions at elementary schools

Despite the constraints just presented, there are several examples of teachers’ interventions in the classroom described in the literature, usually by themselves. Those examples are very useful to demonstrate how news literacy can be taught to such young children. But, before describing those interventions, there is one clarification that needs to be made in order to contextualize them.
Section 1.3.4. explained how scholars in the media literacy field make a distinction between teaching about the media and teaching with or through the media. A similar distinction in the specific domain of news literacy can be made.

Also, as previously mentioned, when I started this research I had some difficulty finding literature and I ended up extending the research terms until I found many articles written by teachers that described their interventions in the classroom. Most of those articles are about the use of the news in the classroom to teach about social studies, history and sciences. Their main focus is mostly on the teaching with/through the news approach, rather than the teaching about the news that I advocate in this study. Nevertheless, many of them often include some reflection on the importance of teaching about the news in order to enhance the teaching with the news. For that reason, and also because there are so few studies about news literacy interventions with children between seven and ten years old, I have decided to include them in this section.

The first example is from Jarman and McClune (2009). While advocating that school curricula should motivate students to read about science in the news and increase their awareness of science-related news, these authors also stress the importance of increasing news literacy education. First of all, they sustain that the major source of information about science that most people have after leaving school is the news. Therefore, they sustain that school should prepare students and increase their awareness of science-related news. However, having surveyed 350 students, between eight and 18 years old, about the news coverage on Pluto’s loss of planetary status, the authors concluded that only half were able to write “relevantly” about it.

On the other hand, they also acknowledge the use of news in science classes contributes for science understanding. "News is also acknowledged as an excellent context for exemplifying the impact of science on society, for examining its strengths and its limitations in the solution of human problems and for exploring its moral and ethical implications" (Jarman & McClune, 2009: 323). Then, they argue that the
upshot of all this is that news literacy education is necessary in order to increase the efficacy of lessons that use the news.

“If we are to equip children and young people to engage critically with science in the news, then they need some awareness, not only of the nature of science, but also of the nature of media. That is not to say that science teachers must assume this responsibility, rather that there is a strong case for cross-curricular collaboration in this context.”

(Jarman & McClune, 2009: 323)

So, they argue that an effort to increase news literacy education is necessary in order to raise the awareness of science-related news. They also stress the importance of a multidisciplinary approach.

Other example along the same lines is the one from Robertson and Mahlin (2005). They also describe how they first had to teach about the news in order to be able to use the news to teach about ecosystems in a third-grade class. In the article “Ecosystem Journalism”, the authors describe a newspaper project creation about prairies that took six 45-minute periods to complete.

After having studied the topic in a more conventional way, this project continued precisely by promoting a discussion among children about the different sections of a newspaper, the structure of the news text and the importance of fact over opinion. Only after having established what could be considered a first lesson of news literacy, the project evolved for the research, writing, editing and publishing of news stories on ecosystem.

In short, this is an example of how two elementary teachers had to combine the use of the news in a science’s class with the teaching about the news. Ultimately these two teachers were also teaching news literacy.
A similar example is the one described by Hines (2008) about a multidisciplinary project which combined the work of an elementary teacher with specialist teachers in the field of arts, music and computer technology. In this case, the focus was on social studies. In particular, they were studying the great black migration in North America. The students participating in this project were between the ages of eight and nine years old in a non-graded class that included a mix of children from various ages before sixth grade in a school from New York.

Like in the project about ecosystems, their project consisted in the creation of a newspaper. Furthermore, they also had some lessons about the news before jumping into the specific social studies issue they were exploring. At that time, they learned the sections of a newspaper, the five W’s and they discussed issues about perspective and bias in journalism and history. With the technology teacher four of them assumed the role of editors-in-chief and participated in the design and photo selection learned how to search photos. Again, these teachers had to teach news literacy before exploring their social studies topic with the news.

Then, the example of Oldendorf and Calloway (2008) even goes a step further as the core theme of their project was the first amendment of American Constitution. The first amendment concerns the freedom of the press. So, they ended up studying issues like propaganda and the history of journalism, discussing printing advances and the Penny Press.

To do that, they also created their newspaper and used role-playing. Children could choose roles like interviewer, biographer, researcher and layout artist.

“Using newspaper in the classroom is certainly not a new idea, but it is more often seen as a strategy in middle school and high school classrooms than in elementary school. However, using the newspaper as text with young children can help them become better readers; to analyze and think critically about content; to interpret images that connect the stories of the day; to
understand the importance of a free press; and to connect with a world beyond the one in their immediate community.”

(Oldendorf & Calloway, 2008: 18)

Ultimately, this example describes an intervention where the focus was teaching about news literacy.

An older case study is the one presented by Lund and Sanderson (1999), who describe a project of a second grade class. According to the authors, the trigger for this initiative was the unsatisfactory experience children had while reading Gail Gibbons’ (1987) non fiction picture book about the news.

“Most of the children didn't like the story, finding it boring and difficult to understand. After listening to their comments, we decided to try to help these second graders understand the importance newspapers could have in their lives and to change their perception of the medium as a boring and useless form of communication. We felt that the most relevant way of doing this would be to have them create their own paper.”

(Lund & Sanderson, 1999: 5).

The project, which lasted eight months, ended up with the creation of a printed and multimedia newspaper.

The example brought by Moore (2013) is slightly different as it describes three case studies made within the scope of a three-year-partnership between a University and in-school and after-school programs. Their goal was to include the news in education too.
While two of the cases focus on older children (fifth and sixth graders), one of them reports the story of a teacher who led a third-grade class to produce a news broadcast. Most of the children taking part in this program were from families with low-income. One of Moore’s (2013) main conclusion is how the use of popular culture facilitates the connection between the news with children.

Frey and Fisher (2009) synthesize information about how primary grade teachers can use newspapers in the classroom, and provide a tested sample lesson for a third-grade class too. The lesson starts with the study of folks and fables from around the world. Then, children are invited to study maps through newspapers and to design, write and publish their own newspaper for the “fairytale community” (Frey & Fisher, 2009).

The authors highlight how newspapers can be used in relationship to a variety of disciplines, such as mathematics, sciences or arts. Authors also underline how this sort of project can contribute to develop reading, writing and social skills (Frey & Fisher, 2009).

A different example is the one reveled by Tomé and Abreu (2016). Their goal was to empower Portuguese children from three to nine years old in the field of digital citizenship. To do that, the authors started by giving training to 25 teachers who were in charge of 366 students. Within the scope of the training, teachers developed activities about media production and online news analysis, for example. Media content analysis focused current news themes, sometimes chosen by students, “thus linking popular culture and school” (Tomé & Abreu, 2016: 231). In the end, teachers recognized “great teaching potential to using the media, either in formal or informal contexts” (Tomé & Abreu, 2016: 230).
3.5. Advantages of teaching news literacy at elementary school level

Apart from the overall outcomes of news literacy education already mentioned at the end of chapter one, the introduction of the news text in language classes and the use of news in other disciplines of study has several specific advantages for children between seven and ten years old as this section will detail.

In the media literacy field, while discussing the exposure to negative content, several authors suggest restricting the access to news among younger children (Knorr, 2014). Maybe that is one of the reasons why there are so few studies within the media literacy field about the news and young children. Another reason may be that academics still underestimate the amount of exposure that this age group is subjected to, similarly like it happens with early childhood media education (Rantala, 2011). However, as we have seen, even when parents assume an active management of children’s exposure to the media, children can still be exposed to the news and current events in other settings, like at school or with peers. Also, although there is the general belief that the news is mostly bad news, the news also is more than that. The previous examples, from section 3.4. showed how the news can be used in the classroom in a positive and constructive way among children from seven to ten years old.

Teaching news literacy to young children can be hard and complicated as we have seen. There are many constraints that may prevent more teachers to follow the examples just presented. However, adding to the already described outcomes of news literacy, the experiences of these teachers show how there are more benefits to add to that list in the specific case of elementary schools.

The benefits of learning news literacy in elementary school, according to the interventions described by elementary teachers are several:
1. Children can improve language writing and reading skills (Hines, 2008; Lund & Sanderson, 1999; Robertson & Mahlin, 2005);

2. They can also become better readers (Frey & Fisher, 2009; Oldendorf & Calloway, 2008);

3. Children can improve their technology skills in various aspects from learning new software to edit pictures to improve the use of keyboard and/or mouse, for example (Lund & Sanderson, 1999);

4. They can develop inquiry, concepts understanding and engage with the topic more easily (Oldendorf & Calloway, 2008; Robertson & Mahlin, 2005). In other words, it contributes to their critical thinking;

5. They can create empathy to global issues (Oldendorf & Calloway, 2008; Robertson & Mahlin, 2005). That means that it contributes in a positive way for their development as world citizens and members of a global society. They may create a stronger connection with the world beyond the surrounding community.

6. They may build up citizenship literacy and lifelong learning lessons (Oldendorf & Calloway, 2008). Although the issue of how long lasting these kinds of interventions are is still under debate, Oldendorf and Calloway (2008) suggest that the civic education resulting from their intervention may have impact in the long term.

While some of these advantages may be more easily measured, like raising writing skills, others appear to have a more abstract nature, like creating empathy. And yet in a theoretical point of view they seem logical. Furthermore, this is not necessarily an exhaustive list but a list of the most common advantages quoted in the literature.

Also, while browsing the literature, not only have I compiled a list of the outcomes in a more abstract level, as I have also compiled a list of the concrete
lessons of news literacy that these teachers have been practicing, as can be seen in section 3.7.

3.6. Out of the classroom examples of news literacy education

Another important aspect to consider is that news literacy education not only occurs occasionally in sporadic projects in the field of sciences, history and social studies in the classroom, like described before; it is also happens in non-formal settings. Libraries, ngos, news companies and other institutions have been involved in creating interventions of that kind.

A studied example of news literacy education in non-formal setting can be found in Portugal: the workshops offered by MediaLab DN, in Lisbon. MediaLab DN is a social project from the national newspaper Diário de Notícias with the goal of educating for the media (Veiga, 2012). They receive children in their headquarters and there they offer workshops about the news. Children usually go with their schools on a field trip. At MediaLab DN there are workshops designed for almost all levels of basic and secondary education, starting with first graders. The workshop for first and second grade consists in designing the first page using a system of colors to overcome reading difficulties that still exist at this time. For grades three and four the same workshop already expects participants to be able to select the news for the first page by reading them (Veiga, 2012).

Also, other educative spaces which hold non-formal education about the news are museums about the news. Some of those museums often include specific resources for children. Examples of that kind are the Newseum in Washington D.C., in the USA, or the Päivälehti, in Helsinki, Finland. The much smaller Portuguese version - NewsMuseum, in Sintra – does not, however, offer specific resources of guided tours for younger children, focusing only on students from 2º ciclo (equivalent to the beginning of middle school) and above, according to their own website (LPM, 2018).
There are many other initiatives of non-formal news literacy education in Portugal, like Público na Escola, for example. As mentioned before, only in 2016, there were 57 Portuguese stakeholders offering media literacy interventions in non-formal settings, many of those were specifically working on news literacy topics (M. Chapman, 2016).

**News literacy education in picture books**

A different kind of resource often used by teachers and parents to teach children about the news is non fiction picture books. Specifically written for children, these books show how various key topics about the news can be explained to them. Most of the competences covered by these books are in line with interventions made in the classroom.

Gail Gibbons (1987) book “Deadline! From News to Newspaper” describes how a newspaper is made, chronologically. It approaches topics like newsroom staff meetings, how editors choose what news to cover, how reporters go to the field to gather information, how newspaper are structured, how journalists work under time pressure, and so on (Gibbons, 1987).

“The Furry News: How to make a newspaper”, by Leedy (1990), approaches more or less the same topic but mixing fiction with non fiction elements, while using furry stuffed animals who are making their own newspaper (Leedy, 1990).

Finally, “The daring Nellie Bly – Americas’ Star Reporter” gives an account of the life of this awarded reporter, who struggled to break through stereotypes against female reporters (Christensen, 2003).

No book of such kind was found in Portuguese language, though.
3.7. News literacy lessons for children from seven to ten years old

Before I described several examples of interventions made by elementary school teachers. Most of those examples weren’t designed to specifically teach about news literacy, but they ended up developing that sort of approach as well. This section summarizes the news literacy lessons, key concepts, skills and competences that were explored in those interventions in a more systematic way.

While describing their experiences, the educators showed some of the lessons that can be given to children from seven to ten years old. Some of those lessons were more technical, others more theoretical, ethical or historical. Some may result in the increase of knowledge and critical thinking, others aim at developing specific skills and competences. Also, the mentioned non fiction books also cover many of the same topics. In the next two tables, I summarize those news literacy key concepts and skills/competences which can be taught to the target group of this study.

Table 1. News Literacy Key Concepts Knowledge for Seven to Ten Year Old Children

<table>
<thead>
<tr>
<th>General topic</th>
<th>Key Concepts and/or Skills</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journalism introduction</td>
<td>Journalism genres. The newspaper structure and its sections.</td>
<td>(Hines, 2008; Leedy, 1990)</td>
</tr>
<tr>
<td>Journalism introduction</td>
<td>The newsroom organization: who does what; deadlines and journalistic standards.</td>
<td>(Gibbons, 1987; Leedy, 1990; Oldendorf &amp; Calloway, 2008)</td>
</tr>
<tr>
<td>Knowledge about Theory and Ethics</td>
<td>Freedom of Expression</td>
<td>(Oldendorf &amp; Calloway, 2008)</td>
</tr>
<tr>
<td>Knowledge about History</td>
<td>History of journalism</td>
<td>(Oldendorf &amp; Calloway, 2008)</td>
</tr>
</tbody>
</table>
Table 2. News Literacy Skills for Seven to ten Year Old Children

<table>
<thead>
<tr>
<th>General Topic</th>
<th>Skill and Competence</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Editing and proof-reading.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Write to inform.</td>
<td></td>
</tr>
<tr>
<td>Production and Technical Skills</td>
<td>Photo search and editing</td>
<td>(Hines, 2008; Oldendorf &amp; Calloway, 2008)</td>
</tr>
<tr>
<td>Production and Technical Skills</td>
<td>Newspaper design and layout</td>
<td>(Hines, 2008; Oldendorf &amp; Calloway, 2008)</td>
</tr>
<tr>
<td>Technical Skills</td>
<td>Computer literacy</td>
<td>(Lund &amp; Sanderson, 1999)</td>
</tr>
<tr>
<td>Research Skills</td>
<td>Reading maps, statistics and infographics.</td>
<td>(Frey &amp; Fisher, 2009)</td>
</tr>
</tbody>
</table>

And so I ask: are the lessons being taught in digital platforms the same as the lessons being taught by teachers in the classroom? How are they in accordance and in difference?
CHAPTER 4

4. News literacy education in digital platforms

4.1. The role of play in the lives of children

The perception about the role of play in the lives of humans has evolved throughout times – from the idea of the *homo ludens* (Huizinga, 1950) to the pedagogical approach of ‘learning through play’ (Piaget, 1975; Vygotsky, 1999). In the case of children, pretend play and roleplaying is a natural method of learning, as Jenkins (2009) explains:

“Most of children’s earliest learning comes through playing with the materials at hand. Through play, children try on roles, experiment with culturally central processes, manipulate core resources, and explore their immediate environments. As they grow older, play can motivate other forms of learning.”

(Jenkins, 2009: 35)

Roleplaying games are a way to pretend play roles that differ from our real person. When we adopt that role, we are assuming a “projective identity”, according to James Paul Gee (2005), who has been studying games, education and literacy. That role is in between who we really are and who we are representing to be. Pretending to be that persona creates a learning experience for the gamer that can test this new role. This sort of simulation is often one of the main objectives of the games for early childhood education too (Gee, 2005).
I sustain that this sort of pretend play may be very useful when teaching children about the news. As a vulnerable population not fully developed yet, children cannot be thrown into real scenarios to report, as journalism students often are. They may have a sense of such practices in a controlled environment like their own school or among their family and friends as interventions have shown. Nevertheless, they could not, or should not, be sent into real life scenarios without a support net. However simulations may offer them some advantages. Applying what Gee (2005) said, while pretending to be a journalist, children would test that role and they could learn with that experience.

Previously we have seen how education can occur in a formal setting such as a classroom or in an informal one such as at home with the family. A child that turns on the computer to play an educative game at home either alone or by her parents is learning mostly in an informal way. On the other hand, digital games can also be used at school as part of a bigger learning project. So they can also be integrated in the classroom in a more structured and formal way. In any case, the news literacy digital games would act as a complement to the school curricula.

4.2. Serious games and education

Games are no longer just about entertainment; either we are looking into the serious games movement, or into the alternate reality games, or even to educative gaming tools. Different authors will support the use of digital games in education with different levels of commitment. Those approaches can go from considering digital games as one complement to traditional education to considering them as an actual substitute of traditional education. Or as Charsky (2010) puts it, the reputation of edutainment and serious games ranges from the “savior of education” to the “worst type of education”. It is not the purpose of this research to take part in that debate. However, as so little is taught about the news according to school curricula (Buescu et al., 2015), I do believe that digital platforms may be an important contribution to enhance news literacy levels among children. I neither
support, nor contradict that games can surpass traditional pedagogical approaches, but I do sustain that they can offer a rich complement.

The serious games movement has emerged and grown in the last few years. It consists in the use of playful activities for the development of serious purposes, meaning non-entertainment ones, in various fields, such as business, health care and military.

Simulations, edutainment and serious games have different characteristics. Games may contain simulations, but they are not the same. Also, simulations may be used in much professional training. When simulations exist per se, they often lack the fantasy element (Charsky, 2010).

Another kind of games is the alternate reality game, often known as ARG. These are games that people also have to play in real life in order to get the most out of the game. A big supporter of this sort of games is Jane McGonigal (2011), author of the book “Reality is Broken”, where it is explained what an ARG is through examples. One of those examples is the game Chore Wars. In that game the gamer can create a virtual avatar, but in order to receive points, the gamer has to perform chore activities in real life, such as cleaning the dust or washing the dishes in his/her own real home. So the virtual environment is in close connection with the real one. It is only possible to evolve in the virtual game, if concrete actions are made in real life. One of the main arguments of McGonigal is that virtual games can contribute to make people happier and improve the reality. “Games can be a real solution to problems and a real source of happiness. (...) Games are a platform for change and getting things done” (McGonigal, 2011: 13).

This is a very optimistic view of these sorts of games and some could even call it simplistic and/or naïve. In fact, examples of this sort of games used for deceitful purposes also exist. A well known example with all but happy consequences is the case of the Blue Whale phenomena which led teenagers to hurt themselves in several degrees, including real death in the last level of the game (Simon-Lewis, 2017). Again, I would argue that the technology in itself is neither good nor bad, but the uses made by humans can be good or bad.
This idea of ARG is linked with another growing movement, known as games for change. As the name indicates, the movement games for change is about using digital games to create a transformation in the society. These sorts of games often have a social impact in the field of human rights, environment and education. Games for change is also the name of a non profit organization that proposes to facilitate the creation and dissemination of that sort of games (Games for Change, 2004).

Finally there are games specifically designed with educational purposes, to be played collaboratively or competitively. Billions of dollars have already been spent by the game industry in designing games that follow school curricula. Additionally, videogames are being used in some schools in various disciplines. However, there are conflicting studies about game’s efficacy in learning (Michael et al., 2012). Effect of games in language learning seem to be more clear than in maths or sciences (Michael et al., 2012) but several scholars suggest that more research is needed to better understand games’ outcomes in terms of learning.

4.3. News and games

The use of simulations to teach about journalism production isn’t new, neither is it confined to the digital environment. Long before technology was being used to create games, games were being used in the classroom to teach about journalism. Some of the strategies that were and continue to be used are, for example, mock media conferences and hypothetical reporting scenarios (Burns, 1996, apud Cameron, 2004). Simulations have been classified as a powerful teaching tool in the field of journalism due to the immediate, fast and sometimes dangerous nature of the craft (Green, 1991, apud Cameron, 2004).

The mix of digital games, reality and current events was coined as ‘newsgames’ by Gonzalo Frasca (n.d.). Frasca describes newsgames as a sort of simulation that resembles political cartoons. He describes them as a news genre and a tool to better understand the real world (Frasca, n.d.).
Ian Bogost, Simon Ferrari and Bobby Schweizer (2010) further developed that concept in the book with the same name – “Newsgames”. In that book, they propose a classification of newsgames that includes several categories. The first category would be newsgames about current events, which would correspond to the concept coined by Frasca (n.d.). Within that sort of newsgames, the authors consider three subcategories: editorial games (the equivalent to a column or editorial cartoon, with a biased message); tabloid games (a “cruder form of opinion” as they call it) and somewhere between the two lays the reportage games (a form of education about an ongoing issue). The other categories are infographic newsgames, documentary newsgames, puzzle newsgames, literacy newsgames, community newsgames and newsgames platforms.

Reportage games differentiate themselves from documentary games because they are of a smaller scale and more immediate. They are launched while “an issue is still current” (Bogost et al., 2010: 16). The authors also sustain that reportage newsgames differentiate themselves from editorial games in terms of bias. “Unlike editorial games, they seek not to persuade players, but to educate them” (Bogost et al., 2010: 16). It is interesting to highlight the choice of the word “educate” instead of the word “inform”.

Indeed, according to the authors’ taxonomy, there are two kinds of games that aim at educating users about the news: newsgames about current events and literacy newsgames. However, the two educate users in two very different topics. While reportage newsgames seek to educate users about current issues; literacy newsgames seek to educate users about what it means to be a “good journalist” and the importance of journalism to the society (Bogost et al., 2010).

In the study “Playing with News: digital games in journalism education”, Wajeehah Aayeshah (2012) considers the existence of what she calls “journalism games”. The way she describes them, these games could be perceived as a subset of Bogost et al.’s literacy newsgames category. For Aayeshah, “unlike the newsgames, which simply instigate awareness about an issue, journalism games aim toward teaching journalists and training them for the required skills” (Aayeshah, 2012).
Therefore, the author sustains that journalism games aim at teaching and training journalists.

In my view, literacy newsgames do teach about journalism skills, but they are not all necessarily designed for future journalists. Some of the examples quoted by Bogost et al. (2010) and Aayeshah (2012, 2015), like the commercial game Dead Rising, were designed for a general audience. These games probably did not even have educative goals at their core. And some of the examples that were designed with journalism students in mind, can be equally useful in training general citizens and consumers of news.

In fact, most of the examples of journalism games and literacy newsgames that both authors use in their works are the result of prototypes made by researchers that target a college student population. There are other examples of news literacy games on the market that specifically target children. But I could not find research about those. Examples of those platforms specifically designed for children are the app News Tutor (Krantz, 2012) and the games available at museums about the news like the one in Washington D.C. (Digital Stemworks, 2013) and the one in Helsinki (Päivälehti Museum, 2018).

4.4. Game characteristics

Much has been written about game characteristics and elements. One of the critiques often pointed out to educational games is that they are not as fun as ‘normal’ games. They feel like school instead of entertainment. Much effort has been made to overcome those disadvantages. Dennis Charsky (2010) argues that serious and educative games should be borrowing the entertainment games’ main characteristics. According to the author, those characteristics are: competition and goals; rules; expressive, strategic or tactical choice; challenges; fantasy; fidelity; hypothetical scenarios; context (Charsky, 2010).

Indeed, if we consider most of the news literacy games already studied by academics (Aayeshah, 2012; Bogost et al., 2010; Cameron, 2004), we will find that
most of them do not incorporate several of these elements. For that reason, one could even argue if it is correct to call them games. Certainly, many game designers would prefer not to call them as such. They would probably rather use terms such as narrative interactive fiction or simulation. Even so, the academics that have analyzed them have used the term videogame, digital game or just game most of the time while referencing them. While I do want to stress that I am aware of the controversy that may be underlined in the term choice, it is not my intention to question other author’s choice of the terms.

Cameron demonstrates awareness of the weak borders between terms’ choice. “The distinction between simulations and games is fuzzy” (Cameron, 2004: 63), he says, also discussing the border between those and interactive fiction. The author of the term newsgames, Gonzalo Frasca also stresses the difference. “Even if simulations and narrative do share some common elements – character, settings, events – their mechanics are essentially different” (Frasca, 2003). In other words, Frasca (2003) sustains that games and stories have some elements in common, but games have an added ludology component.

The examples of literacy newsgames are so few, that for the purpose of this study I have considered that I should be receptive to several terms and approaches.

4.5. Studied examples of news literacy digital games

As previously mentioned, there are a few examples in the scholarly literature of the use of digital game-based type prototype creation to test hypothesis about news literacy improvement and journalism education.

One of the first examples of that kind is the resource City Council developed by Cameron, in 1999, to use in his journalism classes. City Council is a web-based system that mostly uses hyperlinks to gather resources for journalism students pursuing a story. Visually speaking, this system is very simplistic. The main feature is
the rolodex where the users can search for source’s contacts to gather more information. This system lacked interactivity.

Trying to explore how digital based systems could teach interview skills, later on, Cameron took some steps further in terms of game coding complexity. For his Masters thesis he developed another game, called Flood. The innovative aspect of this game was his exploration of interactivity though a chatterbot. A chatterbot is a system that tries to simulate human interaction with virtual characters. Through this feature he tried to solve one of the main critiques that are usually pointed to the use of digital based systems to teach journalism: the lack of interactivity and low potential to teach interviewing skills (Cameron, 2004).

Another example of the use of prototypes in academic research about news literacy is Aayeshah’s PhD research, entitled “Playing with Journalism: Gaming technology in Investigative Journalism Education”. Like the work of Cameron, also Aayeshah (2015) focused her target sample on journalism college students. However, while not only she used games as a proof of concept, but also she interviewed journalism professors. Her research questions were: How have digital games been used for teaching investigative journalism? Unlike Cameron, her focus was not on interview and chatterbots, but on alternate reality games for teaching investigative journalism (Aayeshah, 2015).

There are two more example of digital resources with a game like touch developed to be used in journalism classes. One is News Reporting: a Fire Scenario is another example that was born in an academic setting. Created by Professors Melvin Mencher and John Pavlik in 2001 for the Columbia Center of New Media Teaching and Learining. News Reporting: a Fire Scenario tries to create a journalism simulation through an interactive digital narrative (Pavlik & Mencher, 2001).

HotCopy is another case. It is a virtual platform that uses role-playing to simulate print-media journalism workplace scenarios. The game was designed at Deakin University, in Australia, and contains several levels targeting journalism students from undergraduate levels to masters (Segrave, 2003).
Another learning game about the news developed and researched in academia is Media Detective. But this game targets younger students from 11 to 15 years old. The author’s overall goal is to teach children to produce, evaluate and interpret messages critically (Kiili, 2008). An element that differentiates this game from the others is how teachers can communicate with players while assuming non-player role characters (Kiili, 2008).

“Such a feature makes possible to give feedback of players’ performance without breaking the harmony of the game down. (...) If the teacher can act as a believable game character, the players do not realize that they are occasionally communicating with their teacher. The method is very useful because it provides a way to give feedback also from players’ performance on open and creative production tasks that would be almost impossible to automate. Furthermore, the approach facilitates playing experiences because it creates a feeling of intelligence into the game.”

(Kiili, 2008: 7-8)

This interactive feature, Kiili (2008) states, helped players being more critical about the messages.

4.6. Advantages of news literacy games

Scholars have pointed out several advantages in the use of digital game-based games for teaching journalism. I consider the same could be said about enhancing news literacy. The most commonly quoted benefit of using games to teach in journalism and other fields of study is how they contribute for analytical thinking and problem-solving (Aayeshah, 2012; Cameron, 2004; Gee, 2005).

But there are other advantages. For instance, in the article entitled “Playing with the News: Digital Games in Journalism Education”, Aayeshah (2012) balances
the advantages and obstacles in the use of this sort of games. The author emphasizes that this kind of games contributes for developing a greater sense of perspective among students, the development of empathy and cultural sensitivity. These games can also increase analytical reasoning skills among students, according with the author. Furthermore, Aayeshah (2012) also sustains that these games contribute for the students’ training in specific skills such as gathering information, editing news story and interview technique.

Like Aayeshah, Cameron also concludes that there is a training value in the use of digital games to teach journalism. However he feels the need to stress that those games would not be a good substitute to the real training. “It is difficult to conceive that computer-based simulation would be a more effective experience than industry internships and production-based exercises” (Cameron, 2004: 130), although some exceptions should be considered, he continues, such as database research and digital image manipulation. Although he was the only researcher he found so far that developed and studied the chatterbot feature in the games, he ends his thesis considering that students will have more to gain with a real life training of interviews. “Some core journalism skills, such as door-stop interviewing, simply do not readily lend themselves to simulation” (Cameron, 2004: 130). However the author does sustain that the use of games in journalism students’ training can be advantageous as a complement to traditional teaching in certain specific fields, such as news values assessment, information synthesis, deadline pressure dealing and, again, problem-solving (Cameron, 2004).

Another important benefit in the use of games in journalism classes, he points out, is the debate that it possibly generates as all the students had access to the same materials but may end with different results. In a real situation it could be difficult to discuss the options that the students did, but in a controlled environment like a video game that can be done more profoundly (Cameron, 2004). Cameron (2004) also underlines how useful this sort of resource may be for distance education simulations.

Bogost (2008) adds that the use of these games allow students to experience different perspectives of real-life events.
Spikes and Haque (2015) highlight a completely different advantage. The authors sustain that their first reason for having used a news literacy game in their study was to improve their research methodology. They say the game “allows the researchers to observe verification behavior of the players, instead of only asking for players to complete surveys at the beginning and end of the game” (Spikes & Haque, 2015: 109). This means that they consider more reliable a direct observation of an individual’s behavior in a game, than self-report of a person in real life. This, they argue, is only possible due to the immersion characteristic of the game.

Paul Gee (2005) adds another point of view to the benefits of using games in education in general. In the book “What Video Games Have to Teach Us about Learning and Literacy” he presents 36 principles to learn with video games and he also says that games evolve like Darwin’s theory of species and Marx’s creativity of capitalism idea. As most gamers learn the game by playing, the game has to incorporate good principles of teaching. If it doesn’t than it won’t gets played and it disappears from the market. If it does, it gets played a lot and new games copy those principles and may add new ones that again will only last if they are good. “That leads to better and better designs for good learning and, indeed, good learning of hard and challenging things” (Gee, 2005: 6).

Nevertheless despite all the advantages just summarized, digital games aren’t still being incorporate as often as one could expect, no matter the age or level of education we look at (Aayeshah, 2012). Indeed, there are several important obstacles that are yet to be overcome. The time, cost and the resources implied in the game production are the main obstacles pointed out by most researchers who have used videogames to teach journalism in the course of their studies (Aayeshah, 2012, 2015; Cameron, 2004; Spikes & Haque, 2015). Computer games in general usually take a long time to produce, they require a multidisciplinary team of programmers, designers and storytellers. Than, when considering creating a game in the field of journalism education there is the added obstacle of articulating such a team with the journalism teacher/researcher’s educational goals.

Aayeshah, though, suggests that collaboration between academic departments may help overcome those difficulties (Aayeshah, 2012).
PART II

Methodology

Results

Discussion
CHAPTER 5

5. Methodology

Despite a wealth of studies in the field of media literacy (Buckingham, 2003; Hobbs & Moore, 2013; Potter, 2011), few researchers have addressed news literacy education among young children. Also, previous work has failed to address news literacy education in informal settings. On the other hand, although there are some studies about educative newsgames (Aayeshah, 2015; Bogost et al., 2010; Spikes & Haque, 2015), less is known about educative newsgames for children. Still, there are a few platforms designed to educate children about the news (Digital Stemworks, 2013; Krantz, 2012).

Given the rationale presented so far, this research employs a mixed methods approach to investigate how digital platforms propose to educate children about the news. The work approaches the topic with two complementary angles: content and users. Additionally, this study does that in a multidisciplinary way incorporating methods from journalism studies, media literacy and engineering design.

5.1. Research questions

The main research questions of this dissertation are: How do digital platforms propose to educate children from seven to ten years old about the news and how can news literacy education in digital media be improved?

This study addresses this topic in two general sets of research questions. The first focuses more on formats; the second focuses more on competences. Both examine content and audience perspectives, as it follows:

RQ 1.1. What formats related with gaming, storytelling or educative features are used in digital platforms to teach children about the news?
RQ 1.2. How do children engage with those technological features (gaming and storytelling) while learning news literacy in a digital environment?

RQ 2.1. What competences (skills and/or knowledge) are taught and/or can be taught in digital platforms aimed at educating elementary-school aged children about news literacy?

RQ 2.2. How are those news literacy competences laid out in digital platforms that aim at educating children about the news?

RQ 2.3. How do children engage with the news literacy lessons included in those digital platforms?

RQ 2.4. What do children learn while using those platforms?

5.2. Research design

This study unpacks the research questions in two main stages: first, a formative evaluation and, second, a prototype creation and testing. Each stage includes more than one study as figure 2 details.

In the first stage, I performed a formative evaluation of nine digital platforms designed to teach news literacy to children from seven to ten years old. This stage focused mostly on the research questions concerning content put forward (RQ 1.1.; 2.1.; 2.2.).

The basis for the sample selection of that formative evaluation lays on an exploratory study with five children, made during the first year of the doctoral program (2015). This exploratory study included observation of children exploring several websites and apps about the news and semi-structured interviews about their experience. That preliminary step contributed to incorporate children’s voice in the research since an early stage of development. Based on those results, the formative evaluation was designed and conducted the following year (2016/17).

---

3 This chapter reuses parts of the doctoral dissertation proposal, defended in front of a jury on July 11, 2016. The proposal was not a published document.
The formative evaluation in itself served to assess platforms’ characteristics in terms of gaming and storytelling formats (RQ 1.1.) as well as news literacy competences (RQ 2.1.; 2.2.) offered. The results of that formative evaluation combined with the literature review served to create a first list of common practices.

Then, with that theoretical model of best practices, the study evolved into a second stage. During the second stage, I worked collaboratively with a programmer\(^4\) to design a new prototype, in Portuguese language, which combined those assessed practices. To test the prototype, a first pilot study was done with eight children in two public libraries of Lisbon, Portugal, by the end of the year 2017. The results of that pilot study served to fine-tune the prototype, the study’s protocol and questions.

Next, a final test with a larger sample of 50 children was made in a school context, in 2018. That final test included components such as participant observation, pre and post tests and semi-structured interviews made during an intervention/experiment context. This second research stage contributed to further examine the users’ angle. Formats and competences were tested among children in terms of engagement and learning efficacy (RQ 1.2.; 2.3.; 2.4.).

---

\(^4\) Through the Faculty of Science and Technology at Nova University of Lisbon, I established a partnership with an IT Masters student, called André Sardo, who helped with the programming of the prototype.
Literature Review

Research Stage 1

Exploratory study – English native children
School: St. Julians, Carcavelos

Formative evaluation of platforms designed to teach news literacy (English language)

Research Stage 2

Prototype creation (Portuguese language)

Libraries pilot test:
Libraries: Marvila & Orlando Ribeiro, Lisbon (Portuguese language)

School experiment and intervention
School: Colégio da Bafureira, Parede (Portuguese language)

Figure 2. Research Design Diagram
Thus, the research questions were addressed in both stages by a mixed methods approach that included several components, like: semi-structured interviews, prototype design, pre and post-tests, teaching process, computer screen capture, observation and field notes. This triangulation of methods allowed different perspectives to emerge, fostering a more complete understanding of the conceptual problem. Several definitions and applications of mixed methods can be found in research (Creswell, 2009). For the purpose of this study, I considered mixed methods as a scholar investigation which collected both quantitative and qualitative data at various stages of the research.

The usefulness of the qualitative approach in understanding the meaning and context of the phenomena under analysis has been long recognized by social and communication sciences (Lindlof & Taylor, 2002). Now, this kind of methodology is also being increasingly used in the evaluation of computer systems (Kaplan & Maxwell, 2005). Qualitative approaches help to understand “not only what happened, or what people are responding to, but why; to understand how people think and feel about something and why they think that way” (Kaplan & Maxwell, 2005: 31). In the case of this research, the qualitative approach contributed to a descriptive and interpretative analysis of digital platforms that educate children about the news. It also helped understanding children’s engagement with the formats and competences put forward by such platforms.

While qualitative methods in this study contributed to better understand the phenomena, there were advantages in adding a layer of a quantitative dimension. The rationale for mixing the two kinds of methodologies had to do with the idea that the quantitative approach would add a measurement of certain characteristics, which would contribute to further validate and complement the qualitative data. Both kinds of data were integrated at various stages of the research.

Feedback from children in various stages was also crucial to reassess the best practices, the prototype and the research methodology itself. “In design, it is important to show the effect of an action. Without feedback, one is always wondering whether anything has happened” (Norman, 2002).
Engineering design and academic research go through many of the same stages (Dieter & Schmidt, 2007). Scholar research and engineering design have in common a circular workflow like the one which is shown in figure 3. In the case of this work, shared steps between a design and research model were the following: starting with a problem definition, doing literature review and a formative evaluation (or what engineers might call research), elaborating a model (list of best practices), assessing that model or prototype, redesign the model or prototype, reassess the model or prototype.
5.3. First stage of research

The first stage of research was mostly an evaluation or assessment process. This stage was composed by two studies. The first was an exploratory study with interviews and users’ test with five children. The second was a formative evaluation of nine platforms that teach children about the news.

Evaluation is a “selective exercise” that aggregates and analysis various types and forms of data. This process is usually carried out at the beginning of a larger cycle because it provides a first feedback, which contributes to strengthen the project formulation. Evaluation is focused in “understanding and improving the thing evaluated” (Singh, 2007: 54).

One of the advantages of the formative evaluation is that it allows looking at very specific aspects of various websites and apps in a timely manner. This method may be criticized as being too superficial if compared with the case study approach, which provides a thick description. Nevertheless, for the purpose of this research, that broader overview was considered more useful, given that the purpose of the research was precisely to have an overall understanding of the main characteristics of digital platforms that educate children about the news. This kind of evaluation is a method often used in computer science projects, because it contributes to the system design and use, by identifying potential problems and planning solutions (Kaplan & Maxwell, 2005).

An exploratory study done at the beginning of the doctoral program served to inform the data sample selection of the formative evaluation. That exploratory study gave voice to children and observed their interaction with news literacy digital platforms.

This section details the methodology followed in each study: first the exploratory one, next the formative evaluation.
5.3.1. Exploratory study’s methods

My first empirical approach to the topic of this research was an exploratory study I did, in June 2015. This study included five semi-structured interviews with children who, during the interview, explored six digital platforms about the news for children and answered questions about it. This first approach to the research topic was conducted within the scope of the class “Media Technology”, taught by professor Nuno Correia at FCT-UNL, and attended during the 1st year of the Doctoral Program. At that time, the precise focus of the doctoral research was still not entirely outlined. Indeed, the focus of this first exploratory study is slightly different from the subsequent studies, in terms of the kind of platforms analyzed and the exact age of participants interviewed. Also, given the scope of this study, the analysis was more centered on certain technological features, which were not further examined, because they were not particularly relevant for the overall research, as defined later on.

Although the focus of this study is slightly different from the subsequent ones, it was this preliminary study which helped fine-tuning the overall goals of the doctoral research, and, for that reason, I decided to include it here. Moreover, this study helped assessing children’s perspective at the very start of the research. Listening to what children had to say about the research problem statement, even before having written the doctoral proposal, contributed to include their view in the overall definition of this research. Another important outcome of this exploratory study which led me to include it here was the fact that it served as a basis to define the sample of the formative evaluation. Finally, it was this empirical approach, combined with the literature review, which gave me the confidence to approach even younger children for the remainder of the research.
5.3.1.1. Exploratory study - Data sample

This study included five semi-structured interviews with children between the ages of ten and eleven years old (two girls and three boys). Children were all English natives or bilingual as all the projects to be analyzed were in English language. Children were 6th grade students at Saint Julian’s school, in Carcavelos, Portugal. After the school board gave me clearance to conduct the interviews in the school premises, the pedagogical director of the school selected the children who he considered that could to be more helpful for the purpose of this research. Consent forms were sent to their parents through the school.

For the time being, it was not very clear the exact age range that this research should comprise. I considered that starting by interviewing older children could be more useful, as they would probably be more apt to comment and evaluate the platforms.

5.3.1.2. Exploratory study - Data sources

This exploratory study included a questionnaire done at the beginning, a user analysis during and after the meeting, and a semi-open interview done at the end of each user experience. Field notes were taken during the user experience analysis.

For the user analysis, six digital platforms were chosen for grounds of visibility, antiquity, technological innovation and/or originality, as it is detailed in table 3. Also, as mentioned before, at that moment, it was not yet clear the research focus on education about the news, so there were two kinds of platforms children were asked to analyze. One included platforms specifically designed to teach them about how the news is made, (the kind that continued to be examined by the remainder of the research). The other included journalism platforms which were designed to tell the news to children. This second group of platforms often included
current events’ newsgames, but not news literacy games, as defined by Bogost et al. (2010).

Due to the lack of digital platforms about the news designed for children, and given this was a first empirical approach to the topic, the data sources also included two projects which were not specifically designed for ages ten and eleven. One of the characteristics of the Internet is the absence of boarders. Thus, projects designed with one target user in mind may end up being used by another. Like it happens in the field of children’s literature, the author’s intention may not always correspond to the user’s interest. Often there are books written for adults that end up being read mostly by children and vice-versa. That is what is called the ‘cross-over writing’ effect (Falconer, 2008; Gubar, 2011).

Considering that a similar phenomenon may occur with the Internet, I included one project that targets teenagers and older users. Naturally, having young children experimenting and classifying digital projects which were designed for older people must be done with caution. This choice had to be limited by contents which would be appropriate for the younger ones. That is why, in the case of the Elements of Verification, I only chose the second episode – Information Meltdown (the first was about a school tragedy, which could negatively affect more sensitive children and was not accessed by the five participants of this study).

Table 3. Exploratory Study Platforms’ Identification Chart

<table>
<thead>
<tr>
<th>Project’s name and affiliation</th>
<th>Type</th>
<th>Origin</th>
<th>User’s age target</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Newsround</strong> - BBC/CBBC</td>
<td>Website</td>
<td>TV based</td>
<td>6 to 12</td>
<td>News delivery / presentation</td>
</tr>
<tr>
<td><strong>First News</strong></td>
<td>Website</td>
<td>Paper based</td>
<td>7 to 14</td>
<td>News delivery / presentation</td>
</tr>
<tr>
<td><strong>Dogonews</strong> - Dogomedia</td>
<td>Website</td>
<td>Web</td>
<td>6 to 13</td>
<td>News delivery / presentation</td>
</tr>
<tr>
<td><strong>News-o-Mattic</strong> - Press4kids</td>
<td>App</td>
<td>App</td>
<td>7 to 11</td>
<td>News delivery / presentation (within 3 apps)</td>
</tr>
<tr>
<td><strong>Elements of Verification (2)</strong> - Committee of Concerned Journalists</td>
<td>Website</td>
<td>Broader</td>
<td>Teenagers / Young Adults / Adults (?)</td>
<td>News literacy education</td>
</tr>
<tr>
<td><strong>News Tutor</strong> - Skewed News Tutor</td>
<td>App</td>
<td>App</td>
<td>6 and up</td>
<td>News literacy education</td>
</tr>
</tbody>
</table>
5.3.1.3. Exploratory study - Procedure

All subjects were assessed individually for about an hour at their own school. Each meeting started with an informal introduction and invitation for open dialogue. Then, the session continued with a set of close ended questions to characterize the sample. And, next, the session went on with a user analysis of six platforms, during which I asked children to comment and think out loud about their choices and reactions.

At that time, two devices (a portable PC and a tablet) with the platform’s homepage already loaded in different tabs were handed to the subjects. They were asked to navigate for about five minutes in each project with the following idea in mind:

“Imagine that you are looking for news to get informed about what is happening today in the world. You have access to a PC and an iPad. But you have limited time for it – about five minutes to spend in each site/app. Someone suggests you should have a look on the following sites/apps: Newsround; First News; Dogonews and News-o-Matic.

For each one, try to fulfill the following four steps:

(1) Spend a few minutes navigating the homepage and reading the news titles; (2) In each platform, choose two news stories, access them and read them; (3) Then go back to the homepage and look for non news story items, like quizzes, polls, meet the reporters, or others; (4) Try one of those features per site.”

in Appendix 1
During this phase, I tried not to interfere much, assuming more an observer capacity of their user experience. In the middle and at the end, children also answered some more close-ended questions about the platforms. Additionally, children were asked to assess the other two platforms (*News Tutor* and *Elements of Verification*) and follow the same analysis protocol.

At the end, a semi-guided interview was held. Throughout the session, and especially at the end, conversation was very informal and interactive.

### 5.3.1.4. Exploratory study - Instrumentation

This study included three instruments: questionnaire, user analysis and semi-open interviews. This section synthesizes the full questionnaire and interview guide which can be found at appendix 1.

#### Questionnaire

The purpose of this quantitative method was merely to characterize the sample and identify the subject’s expectations about projects of this kind beforehand. It included questions like:

- demographics (age, gender)

- internet usage habits (time spent; most frequently visited sites; place of most frequent access; alone or with company; available devices at home)

- news consumption habits: Have you ever used the internet to look for the news by your own initiative? If yes, how often have you done so? Have you ever read the news on the Internet (including through email, social networks or mobile)? How do you usually access the news? Are you involved in any journalistic activity at school, such as writing or producing content for the school or class newspaper, TV, Radio or blog? Have you ever gone on a school field visit to a newspaper, TV or radio station? Have you ever read a text from a newspaper in an English class?
- parents’ context (job and highest level of education attained)

- news socialization and perception about parents relationship with the Internet and the news: How often do your parent's access the Internet? How would you classify your parents Internet use competence? How often do your parent's read the newspaper/watch the news on tv/listen to the news on the radio/ read the news online?

The questionnaire method was used again in the middle of the user test to assess the user experience, as described next.

**User analysis**

The user analysis’ goal was not merely to test heuristics (Nielsen, 1993), errors and problems on the platforms; but to observe how users navigated and became satisfied or frustrated with given features (Norman, 2002). Notes were taken about users’ preferences, how they interacted with the interface, body language, comments and doubts.

The time was controlled by the researcher, in a flexible way. Whenever necessary, children were suggested to move on to the following project and/or step. All doubts were answered, but sometimes with questions and not direct answers, as I tried to intervene the least possible way.

Children were invited to rank the experience through a questionnaire, in two moments: first, after having explored the first four platforms (which were basically journalism websites for children); and second, after having experienced the other two platforms (which were games that taught them about news production). Evaluation questions covered technological topics, like navigation, usability and design. They were asked in the following terms:

“Please state your position regarding the following statements

(I strongly agree, I agree, I agree a little, I don’t agree, I don’t know):

- The news in this website seemed relevant and important
- The news seemed well structured
- The site’s design is cool
- The site is fun to use
- The site is easy to navigate
- I would recommend this website to a friend
- Did you already know any of these websites? If yes, can you please describe how often have you accessed it and on what occasions?

*in Appendix 1*

**Semi-open interview**

After the user experience, a semi-open interview was made. Children were asked about their favorite platform, least favorite platform, the platforms which taught them the most and the least and why. They were urged to talk about the experience as a whole and about expectations on projects like this.

**5.3.2. Formative evaluation’s methods**

The results of the above mentioned exploratory study contributed to focus the research angle on educative platforms which use storytelling and games to explain how the news is made. Thus, when the formative evaluation was put into place, data sources were already chosen with that gaming and storytelling angle in mind. Overall, the formative evaluation examined questions about what formats (RQ 1.1.) and competences (RQ 2.1.) the analyzed platforms bring into play as well as how these platforms propose to pass along those competences (RQ 2.2.) to children.

---

5 The formative evaluation section (5.3.3.) reuses parts from three different articles published or presented during the Doctoral Program. One of the articles is focused mainly on storytelling elements (Campos, 2017a); another is focused mostly on the learning principles and gaming features (Campos, 2018a); and the third is focused on learning competences (Campos, 2018b). Parts of the three articles are reproduced in this dissertation *ipsis verbis.*
5.3.2.1. Formative evaluation - Data sample

The sample of platforms included in the formative evaluation was selected based on (1) several web searches throughout the first three years of the Doctoral program, (2) inquiry to media literacy and education experts, such as Kathleen Tyner, from Radio-Television-Film Department at Moody College of Education, and Joan E. Hughes, from Curriculum and Instruction Department at College of Education, both at The University of Texas at Austin, (3) inquiry to key informants interviewed for this study, Colleen Bradford Krantz, from News Tutor, and Peter Adams, from News Literacy Project, and (4) the above mentioned exploratory study with five children from ten to eleven years old, conducted in June 2015.

Given those four inputs, the final sample of nine digital projects was chosen for the reasons described in table 4.

There were several other platforms which could have been included in this analysis but which were not. For example, the Päivälehti Museum, in Helsinki, Finland, also hosts a newsgame to teach children about the news. Their game can be customized according to teachers’ goals (Päivälehti Museum, 2018). The main reason for not including an analysis to this game in this formative evaluation had to do with language constraints as I do not understand Finnish language.

Another digital platform related with the news and targeting children from almost all ages is Newsella. The reason for not including Newsella, is that Newsella is not strictly about news literacy education. Newsella is a platform which hosts news content and labels those articles by ages and disciplines facilitating teachers’ work to use news content in their classes and contributing for students’ reading engagement and motivation (Newsella, 2013).
### Table 4. Formative evaluation’s sample description

<table>
<thead>
<tr>
<th>Project title</th>
<th>System type and link</th>
<th>Description / Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>News Tutor</strong></td>
<td>App game for iPad</td>
<td><em>News Tutor</em> is an iPad game to teach young children about how the news is made.</td>
</tr>
<tr>
<td><strong>Elements of Verification</strong></td>
<td>Website based game made within the scope of an Institutional broader project: <a href="http://www.rjionline.org/files/VerificationApplication/index.html">www.rjionline.org/files/VerificationApplication/index.html</a></td>
<td><em>Elements of Verification</em> is a group of three games which teach about how the news is made. Although it seems to not have been designed specifically for children, given the complexity of the language used, its structure follows a non-linear interactive narrative, and the stories are accessible to pre-teens. Furthermore, during the exploratory study, most of the interviewed children appreciated it.</td>
</tr>
<tr>
<td><strong>Checkology</strong></td>
<td>Website with educational tools to use in class from a broader institutional project: <a href="http://www.thenewsliteracyproject.org/">www.thenewsliteracyproject.org/</a></td>
<td><em>Checkology</em> is a website supported by the NGO News Literacy Project that teaches news literacy in some US schools. The particularity that interests studying here is the digital resources that they make available for teachers to use in the classroom.</td>
</tr>
<tr>
<td><strong>What Would You Do?</strong></td>
<td>Interactive touch screen. Available only on site - Newseum, Washington D.C.</td>
<td>This is like a website or cd-rom teaching about journalism ethics. It may be targeting teenagers and an older audience given its moral complexity in some of the cases presented. Even so, and given its interactive characteristics and the fact that some of the cases may be accessible for an younger audience it is worth including it in this sample. Also, the key informant told in the interview that all games at the Newseum were for all school aged children (Gavankar, 2017, February 3).</td>
</tr>
<tr>
<td><strong>Newseum News</strong></td>
<td>Interactive touch screen table. Available only on site - Newseum, Washington D.C.</td>
<td>This is a game about journalism which can be played by several people at the same time, including younger children.</td>
</tr>
<tr>
<td><strong>Be a Photographer</strong></td>
<td>Interactive touch screen. Available only on site - Newseum, Washington D.C.</td>
<td>In terms of characteristics, <em>Be a Photographer</em> is between a game and an interactive narrative. Its main goal is to teach about journalism. It is accessible for young children.</td>
</tr>
<tr>
<td><strong>Race for Your Rights</strong></td>
<td>Interactive touch screen. Available only on site - Newseum, Washington D.C.</td>
<td><em>Race for Your Rights</em> is a simple game which teaches about freedom of speech. The graphs make it attractive to young children.</td>
</tr>
<tr>
<td><strong>Make a Match</strong></td>
<td>Interactive touch screen. Available only on site - Newseum, Washington D.C.</td>
<td><em>Make a Match</em> is a simple game about newspaper covers and news people. It is accessible for young children.</td>
</tr>
<tr>
<td><strong>Be a Reporter</strong></td>
<td>Interactive touch screen. Available only on site - Newseum, Washington D.C.</td>
<td>In terms of characteristics, <em>Be a Reporter</em> is between a game and an interactive narrative. Its main goal is to teach about journalism. It seems to have been designed for young children given the graphs, language and plot used.</td>
</tr>
</tbody>
</table>
The Mediabreaker / Studio from The Lamp organization is another digital platform about media education which was left out of the formative evaluation because it had a wider scope, including education about commercials, music and other media literacy domains beyond the news (The Lamp, 2016).

Also, several platforms launched during this research were left out of this sample, simply because they were launched after we had started designing our prototype, and, for that reason, examining them, at that time, would no longer have an effect on this research.

Although the number of digital platforms about news literacy education continues to be just a handful, it has grown greatly during the time period in which this research was carried out. Most of the games launched more recently focus on the disorder of information issue and follow a similar structure to teach people to produce false information with the goal of raising people’s awareness of how they can be manipulated. Some of those games are Play Fake News (ISL Gaming, 2017); Fake It to Make It (Warner, 2017) and Bad News (DROG & Cambridge Social Decision-Making Lab, 2018). These games are not necessarily designed for young children, but, if they had been launched earlier on, it would have been interesting to include them in the formative evaluation sample too.

In the end, other platforms could have been included, however the sample of nine platforms included in this formative evaluation already provided plenty of data for this research’s purpose of assessing formats characteristics and competencies.

5.3.2.2. Formative evaluation - Data Sources

The instrumentation of the formative evaluation included a qualitative analysis of nine digital platforms and three semi-structured interviews with key informants. Informants are people with valuable knowledge for the research objectives (Lindlof & Taylor, 2002). Interviews of that kind were conducted with Colleen Bradford Krantz, author and creator of the News Tutor app; with Peter Adams, senior vice president for educational programs of The News Literacy Project...
which is in charge of the *Checkology* platform; and with Sonya Gavankar, manager and public relations at the Newseum, responsible for developing six of the nine analyzed platforms. The last interview was made by email and it was very limited in the depth of analysis, when compared with the other two, which were made by Skype.

### 5.3.2.3. Formative evaluation - Instrumentation

Inspired by several authors from the design, technology, journalism and media literacy field (Engelhardt, 2002; Renee Hobbs, 2010b; Padovani, Spinillo, & Gomes, 2009; Zamith, 2008) and given this study’s research questions, a chart of analysis focusing on four categories of analysis, was elaborated as it follows:

#### a) News literacy competences

Under the first main category – news literacy competences – the systems were scrutinized by their main purpose and what competences were taught (RQ 2.1.). By competence, I mean the set of knowledge and skills, which allows learners to improve their attitudes, values and beliefs, in order to improve their personal fulfillment, active citizenship and social inclusion, and which should be transversal to all stages of life, including childhood (European Commission - Education and Culture DG, 2007; European Commission, 2018). Based on empirical studies presented at chapter three and after having found some common topics in the analyzed data (Corbin & Strauss, 1990), I then systematically examined the platforms searching for the presence of the following knowledge key points: ethics (including topics like bias, freedom of information, and others); media systems (including issues about revenue models, information about media companies, and so on); history of journalism (including journalism figures and topics about history of the press) and news construction (including issues like news angles and news criteria, for example). I also systematically searched for the presence of the following skills: news writing (including lessons about leads, titles, writing structure, 5W’s+1H); news gathering
(including lessons how to search information, sources, interviews, and so on); image (including photojournalism and video journalism); and news production (including lessons about how to edit news articles, how to edit a newspaper, how a newsroom works, deadlines and time management). Some of the topics, especially, news construction were assessed both in terms of skills and knowledge.

b) Learning principles

The category learning principles examines how platforms propose to transmit those competences to children (RQ 2.2.). According to Hobbs (2010b), when teaching news literacy to young children, there are seven principles which may contribute to create “a learning environment where learners can build knowledge, critical thinking and communication skills in ways that are personally meaningful and relevant to them” (Hobbs, 2010b: 5). Those principles are:

“(1) starting from the learner’s interests; (2) connecting comprehension and analysis; (3) asking critical questions and listen well; (4) focus on constructedness; (5) use new ideas to directly support the practice of critical analysis and media composition; (6) use collaborative multimedia composition to produce meaningful and authentic communication; (7) make connections between the classroom and the world”

(Hobbs, 2010b: 4-5).

So, in this second category of analysis, Hobbs’ (2010) seven principles were used as a lens of analysis. In an interpretative approach to the sampled platforms aimed at teaching news literacy to children, I searched for the presence or partial support to these seven learning principles.

c) Technological features

Under the third category of analysis – technological features – I analyzed the sampled platforms in terms of features like general characteristics; navigation structure; visual elements (including graphic and arts); interactivity characteristics;
and differentiation factors which could make the user experience unique. The technological features category in combination with the following storytelling and gaming elements category contributed to examine what formats were used in this platforms (RQ 1.1.).

d) Storytelling and gaming elements

Not all sampled platforms are considered games. Actually, as mentioned before, the line between games and interactive storytelling is not always clear in the case of journalism games (Cameron, 2004). One of the platforms is clearly not a game, as it presents itself as a MOOC. For the purpose of this research, an open and inclusive approach to platform types was adopted as it could contribute more for the goal of the study. So it was anticipated that the analyzed platforms would use gaming and storytelling elements to a different extent.

While trying to describe storytelling characteristics of the platforms, I paid special attention to the plot, characters and narrator used.

As for the game elements, I identified the game type (action-adventure; simulation; narrative non-linear, quizzes, puzzles, etc). I also examined for how many players the game was designed for; again what the storyboard/plot was and how the score and/or rewards were given.

5.3.2.4. Formative evaluation - Procedure

All analyzed platforms were accessed several times, exploring different paths each time. I've tried all of them at least twice, and in some situations three and four times. First, and before playing, I explored their features, collecting data for further analysis. Then, on the first time that I played the game, I always tried to win it. On the second attempt, I always tried to lose it. In some occasions, on a third and fourth attempts, I tried to have average scores. The purpose of exploring different paths throughout the game was to get better acquainted with its interactive elements and
to explore how the game might give different feedback to different end results. Information about all analyzed categories was gathered in a spreadsheet, using *Google Sheets*. In the case of the games available at Newseum, besides experimenting with the games and taking notes about it, I also filmed the screen, with permission from the museum staff. That screen capture was useful to continue the analysis later on, as access to those games was physically restricted to the location of the museum.

In the case of *News Tutor* and *Checkology*, data was complemented with semi-structured *Skype* interviews of 30 to 45 minutes with key informants. Both interviews were done during the first trimester of 2017. A guideline for the interviews is included in the appendix section. A shorter interview by email was also made with a Newseum representative.

*News Tutor* and *Elements of Verification* had also been accessed by the five children who participated in the exploratory study, in June 2015.

### 5.4. Second stage of research

The first stage of research approached research questions about content put forward by the platforms which propose to educate children about the news. The second stage of the research focused more on users’ perspective, examining children’s engagement with the formats (RQ 1.2.) and with the competences (RQ 2.3.) offered by those platforms. During this stage, I also examined what effect do those platforms have on children, in other words, what are children learning (RQ 2.4.) while using them. This second stage is made up by three steps: prototype creation, pilot test in libraries and school experiment and intervention.

There were several reasons that led to the prototype creation. First, there were no platforms to teach news literacy in Portuguese language that I knew of. Building a prototype of this kind in Portuguese language allowed not only to test it among Portuguese children who are not bilingual (and most are not), but also to add a layer of social impact to this academic research, interacting with the population.
and creating a product to improve media awareness among Portuguese speaking children.

Second, when a researcher creates a prototype he or she can control which features are included in it for research purposes (Spikes & Haque, 2015). So, in the case of this research, the creation of a prototype allowed me to gather the best practices assessed in the first stage of the study, making it easier it’s testing among children. Also, another “reasoning behind using a game would be to allow the researchers to observe verification behaviors of the players, instead of only asking for players to complete surveys at the beginning and end of the game” (Spikes & Haque, 2015: 109).

Naturally, these advantages come hand in hand with some constraints and limitations. Programming is usually a time consuming task that raises an added challenge given the timeframe of a doctoral program. Furthermore, although, in theory, creating a prototype has the advantage for the researcher to control all the features to be tested almost like in a laboratory layout; in practice, prototype creation is the result of teamwork and, as such, there is no bullet-proof control of all aspects.

The prototype was then tested among its target group, children from seven to ten years old, through a mixed methods approach which included a survey, observations, group discussions and interviews. Those tests occurred in two moments: a pilot study and a final study. The pilot study allowed fine-tuning the instruments and procedures used as well as the prototype. Then, the final testing, with a larger sample, was put into place.

5.4.1. Prototype methodology

There were four main reasons for creating a prototype. First, the creation of a prototype allowed gathering into a single platform all the practices accessed in the previous research stage. Second, I was also able to manipulate the prototype’s structure after having the results of the pilot study, adding a revalidation layer to this
research. Third, I was also able to include new formats/competences which were missing in the accessed platforms, such as lessons on news writing, for example. Finally, as it was build from scratch, content was elaborated in Portuguese language, facilitating its testing among a Portuguese population.

The prototype creation is not a study *per se*. However, for the sake of transparency in the research, I decided to add a section in this chapter to explain the methodology behind its creation (section 5.4.1.) and a section in the results’ chapter about the final product (section 6.2.1.).

5.4.1.1. Prototype - System design

The prototype is a web-based system. It uses a reactive framework for the frontend called VueJS, which allows an immediate interactive feedback with almost no delay, contributing for a smooth interactive experience. The backend system was built with Laravel (PHP). Based on children’s view expressed during the first exploratory study, the formative evaluation of other systems and a creative approach of the researcher, three main system categories were included in the prototype: (a) one for news literacy games; (b) another for the news of the day/week/month; and (c) another which allowed an interaction with the news of the day/week/month.

At first, the game section only had one game. However, results obtained during the pilot study allowed us to come back to the design stage and fine-tune the prototype, making some changes to that first game and adding two more games. Children’s participation in various stages of this research contributed to integrate their perspective not only in the research design, but also in the prototype design.
5.4.1.2. Prototype - Procedure

Due to the lack of programming knowledge from the researcher, a partnership with the Faculty of Sciences and Technology at Nova University of Lisbon was established. Thanks to that cooperation, the IT MA student, André Sardo, helped with the programming of the prototype.

Sardo helped with the prototype creation by programming the backend and frontend. Sardo expertise was backend. For a while, there was the expectation of having a frontend developer working with us too, but that did not happen and Sardo ended up developing the prototype’s frontend too. His work followed the researcher’s architecture directions, which were based on the formative evaluation of this study, and later, on the pilot study too. In an open and collaborative approach, André Sardo was in charge of the system design, choosing the server, programming language and screen capture technique to use. I was responsible for the concept, defining the prototype’s structure. I also elaborated the wireframes and all the content which was uploaded.

5.4.2. Libraries’ pilot study’s methods

The pilot study included field observation, close-ended questions and semi-guided interviews to perform an initial evaluation of the prototype. The purpose of the evaluation at this stage was to fine-tune the prototype according to children’s engagement and learning in order to make them part of the design process and also to test the questionnaire and protocol to use in the final testing.

Because the field work of this pilot study was initially scheduled to happen during summer vacation, I consider public libraries as a convenient setting. Due to delays with the prototype design, the pilot study ended up being put in place during

---

6 A paper about this pilot study was accepted at IDC 2018 Conference and its publication is forthcoming (Campos & Sardo, 2018). Parts of that paper are reproduced in this section *ipsis verbis*. 
the school year, between the months of October and November 2017. As contacts with public libraries had already been established, the setting for the pilot study remained the initially planned.

Several public libraries of Lisbon were contacted. Orlando Ribeiro and Marvila were chosen because their representatives were the first ones showing an interest in holding the workshops.

5.4.2.1. Libraries’ pilot study - Sample

Eight children between seven and ten years old participated in this study. Five of them were female, three were male. Children were recruited through the two public libraries of Lisbon, where the workshops took place. Both libraries used their normal channels of communication (institutional mailing list and a poster at the children’s section of each library) to announce the workshop. Children could sign up for the workshop beforehand. Consent forms to parents and children were distributed before the workshops took place. The workshops were also authorized by the local coordinator of the children’s section at both libraries, as well as the head director of the city’s libraries cultural program.

Only two children showed up for the first workshop. Both children were accompanied by their parents and both parents had attended University.

The second workshop had six participant children who showed up without their parents. The librarian had told us in advance that, in this library, Marvila, children usually showed up alone. Therefore this group had to ask their parents in advance for them to sign the consent forms.
5.4.2.2. Libraries’ pilot study - Procedure

The interaction with the platform was recorded through screen capture, using a service called Fullstory. Children’s responses to a before and after questionnaire were given in writing through Google Forms. Field notes were taken about children’s comments and reactions during the workshop.

Workshop

I held one workshop of one and half hour in each library. The first workshop happened at Orlando Ribeiro Library of Lisbon, which is located in a medium class neighborhood. The other workshop was held at Marvila Library of Lisbon that is located in a lower class neighborhood. I moderated both workshops. A librarian was present during the second workshop, but not during the first one.

After verifying the consent forms, the workshops started with an introduction to who I was, what was going to happen and remembering them that they were free to stop participating in the workshop, whenever they wanted to, and also that they did not had to answer to all questions, if they did not wanted to. Then, children undertook the pre-questionnaire. Questions were read aloud to help them filling in. Next, children were invited to explore the prototype by themselves. In the end, children answered a post-questionnaire evaluating the game and evaluating their news literacy levels again. We had a group discussion about the prototype and about journalism.

At the end, three stories about journalism were read aloud. The read aloud stories were included for no specific research purpose, but because this study was held at public libraries. Therefore, the read aloud was only performed after all data had been collected. The read aloud is mentioned here for transparency purposes. Books were chosen in accordance with the workshop topic and based on the literature review. They were all non fiction picture books for children:


Finally, after the workshop ended, children were given the chance to repeat the game all the times they wanted to, before leaving.

### 5.4.2.3. Libraries’ pilot study - Data sources and instrumentation

Data sources included field notes of the participant observation of the workshops, screen capture of game sessions and a before and after questionnaire.

**News literacy assessment**

One of the aims of the research is to understand how digital platforms support news literacy and how did those platforms, including games, improved news literacy among children from seven to ten years old. So, while testing the prototype, it was important to measure if the prototype was indeed contributing to raise news literacy levels among the target population. In order to test that, I performed a before and after questionnaire. The questionnaire’s measures were based on a clear construct which had been validated (Maksl et al., 2015).

The first published study from Maskl, Ashley and Craft to establish a news literacy scale was from 2013. At that time, they developed a news literacy scale based on the model by Primack et al. (2006) with three domains – authors and audiences, messages and meanings and representation of reality. This scale was tested with a 244 college-student sample (Ashley, Maksl, & Craft, 2013). Their subsequent work from 2015 was based on a different framework and it was tested with a younger sample. The authors adapted Potter’s 2004 media literacy model to measure news media literacy and tested it with 500 teenagers (Maksl et al., 2015). The following year, the authors published a new study using again a news literacy scale based on Potter’s work. This time they tested the scale with a college-student population of 748 respondents (Maksl et al., 2016).
At ICA Conference, held in San Diego, USA, in May 2017, I contacted one of the authors of these studies, Stephanie Craft. I asked her if they were developing a scale for an even younger population as I could not find any other studies which had developed a news literacy scale specifically for children. She said that they were not. Following Craft’s recommendation given at that moment, I end up using their 2015’s study scale as an inspiration for my own assessment.

As Maskl et al.’s (2015) scale was developed for a teenage population in the United States, I had to tailor the questions to this study’s participants. Overall, I followed the questionnaire rationale, keeping questions from almost all variables, as it follows: questions about automatic vs. mindful thought processing; questions about media locus of control; questions about news media knowledge structures; questions measuring outcome variables - news media use, current events knowledge, demographics. The exact questionnaire can be found in appendix 5.

5.4.2.4. Libraries’ pilot study - Data analysis

Field notes, questionnaires and game sessions were analyzed using a method of constant comparison (Corbin & Strauss, 1990), looking for patterns about children’s engagement with the platform and their learning outcomes to fine-tune the prototype for the final testing with a larger sample size.

The purpose of using a quantitative measure at this point of the research was not to establish quantitative findings as a sample size of just eight participants was clearly not enough. The purpose was to test my adaptation of such scale with the age group and culture of the participants, in order to use it in the final testing. Therefore, in the data analysis of the pilot study, I run basic frequency statistics, using Excel, but no paired t-test or regressions due to having a small sample size. Additionally, I paid close attention to notes about how participants reacted to the questions, to their doubts and to their individual answers.
5.4.3. School experiment and intervention’s methods

Following the pilot study, modifications to the prototype were made, based on the results obtained at that moment. Two new games (game two and three) were added and a recap slide of the lessons being taught was also added to the first game. Additionally, slight adjustments were made to the questionnaires and to the workshop protocol. Having made those improvements, I was able to put into practice a final testing.

The final testing included field observation, close-ended questions and semi-guided interviews to perform a re-evaluation of the prototype. The purpose of the re-evaluation was to re-validate and complement the data gathered during the previous studies, adding a more robust quantitative dimension to the research.

I started contacting schools between November and December 2017, right after the libraries’ pilot study had been put into place. I approached the first 15 and the last 15 schools from the national school ranking based on the 4th grade exams of 2015. I browsed results by schools from Lisbon region which had more than 50 exams (Leiria, Bastos, Albuquerque, & Rosa, 2015).

When contacting schools, I briefly explained who I was, what was the workshop about and how would it be held. Because winter holidays were already approaching, I tried to secure a time slot for the beginning of the following year. Contact was made by phone and email to all schools. Most school representatives did not reply, even after a second and third contact attempt; a few answered expressing that they did not had time nor interest in the workshop. The pedagogical director of Colégio da Bafureira showed interest in the initiative and we met in January.

On that first meeting I explained in further detail the protocol for the workshop, I showed the prototype and the questionnaire. Participants of grades two, three and four were then recruited through the school, by sending consent forms to all parents.
Three workshops were held between the 5th and 9th of February 2018 on the computer lab room from Colégio da Bafureira. There was one computer per child. All computers were lined up against a wall and in the middle of the room there was a wide open space where children could seat on the floor facing a white board.

5.4.3.1. School experiment and intervention - Sample

Sixty children participated in the workshops which were held at Colégio da Bafureira. Out of those 60, two did not have their parents’ consent form signed because, allegedly, they had forgotten it at home. So they were allowed to participate in the workshop but no data was collected for research purposes.

Although the questionnaire was filled during the workshops there was not a 100% rate of return as eight participants ended up not clicking in the submit button at the end. Six of those eight misunderstood the instructions, and, after having filled in the entire form, they closed the browser without sending in the data. The other two took too long filling in the questionnaire and, in order to proceed with the workshop in a timely manner, they were encouraged to join in the group discussion without sending in the data too.

Therefore, a sample of convenience of 20 females and 30 males (n=50) composed the final survey sample. Participants were grouped by grade in three workshops of one and a half hour each. The workshop for second graders had 21 participants; the workshop for third graders had 15 participants and the workshop for fourth graders included 14 participants. Overall, there was one participant with six years old, 17 with seven years old, 12 had eight years old, 17 had nine years old and three had ten years old (n=50).

Colégio da Bafureira is a private school of Cascais’ municipality, in the bigger Lisbon region, with over 100 years of existence. It was placed 14th in the district of Lisbon in the 2015 school ranking of 4th grade exams (Leiria et al., 2015). Most children came from well placed economic households, with most parents holding at least a BA degree.
5.4.3.2. School experiment and intervention - Instrumentation

Several instruments were used at the workshops: a pre and post questionnaire, screen capture, participant observation, semi-guided interviews and group discussions.

Survey

After the input from the pilot study, the original pre-questionnaire based on the validated construct by Maskl et al (2015) was revised for completeness and efficacy. Some questions were rewritten to improve clarity. Other questions were discarded as the questionnaire seemed too long for the sample target age. For example, instead of having ten questions for the news literacy variable, I decided to only include five. Also, instead of using the exact same five questions to measure news media literacy before and after the workshop, I included a set of five new questions in the post-test to break the monotony. In the end, the new survey included questions about demographics, internet consumption, news socialization, current events knowledge, news literacy knowledge before and after, as well as game evaluation. The exact wording, order and appearance of each question can be checked at appendix 6.

Apart from common demographic questions, to assess participant’s characterization, questions about current events knowledge, news socialization, net and news consumption were asked as it follows.

Current events knowledge

To assess participants’ current events knowledge three questions with multiple choice were asked:
“Who is António Costa?
   a. Prime Minister (right answer)  
   b. United Nations Ambassador  
   c. Republic’s President  
   d. I do not know

There were some big and tragic wildfires this Summer. Where?
   a. In the center of the country, near Pedrogão (right answer)  
   b. In Madeira Island  
   c. I do not know

The school rankings were released last week. Mark the right sentence: 
   a. The rankings are based on 1º Cycle exams  
   b. The rankings are based on 9º and 12º grade exams (right answer)  
   c. I do not know”  
   in Appendix 6

**News socialization**

To assess news socialization level among participants the following questions were asked:

“Do you usually see your parents watching, listening or reading the news?
   a. Yes  
   b. No

Do you usually talk with your parents about the news?
   a. Yes  
   b. No

Do you usually listen to your parents talking about the news?
   a. Yes  
   b. No”  
   in Appendix 6
Net and news consumption

To measure internet consumption, participants were asked:

“Do you use Internet?
   a. No
   b. Yes, at least once or twice a month
   c. Yes, at least once a week
   d. Yes, everyday”

in Appendix 6

To measure news consumption on the Internet, participants were asked:

“Have you ever used Internet to read, watch or listen to the news?
   a. Yes
   b. No”

in Appendix 6

News literacy pre-test

To assess the news literacy level at the start of the workshop the following five questions were asked:

“A commercial is different from a news story because:
   a. It is a made up story
   b. It tries to sell a product (right answer)
   c. I do not know
Who decides what news show up in the TV Newscast?
   a. The reporter
   b. The editor (right answer)
   c. I do not know
It is often said that the news is not a reality mirror. What do you think that this means?

a. The news written by a journalist contains some made up information
b. The news written by a journalist is just one way to tell what happened. There may be other ways (right answer)
c. I do not know

Which of the following newspapers is usually considered more sensationalist?

a. Correio da Manhã (right answer)
b. Público
c. I do not know

How does a journalist produce a news piece?

a. He/she looks for information and makes interviews (right answer)
b. He/she looks for information, copies from the books and makes interviews
c. I do not know”

in Appendix 6

News literacy post-test

News literacy level was assessed again after children had played the games and explored the platform at the end of the workshop. The post-test included different questions, based on the lessons included in the games. Also, instead of multiple choice, a true/false kind of quiz was presented, as it follows:

“Help me correct these answers, signaling the ones which are right and wrong. If you are not sure, answer “I do not know”.

1. The editor chooses the news that appears on the newspaper pages or on the newscast. (true)
2. Journalists must tell facts with accuracy and precision. (true)
3. The title of a news story does not have to be true if it is engaging. (false)
4. News stories can be told through different angles or perspectives. (true)

Engagement with formats and competences

To quantitatively examine children’s engagement with the formats, they were asked to classify, in a five point Likert scale, how much they liked or disliked some of the features which had been assessed in the formative evaluation research stage as common and potentially good practices, as it follows:

- Simulation – Pretend to be a journalist in the game “Reporter at the Zoo”
- Editor Feedback – Comments from the editor in the game “Reporter at the zoo”
- Asking questions – The possibility of asking questions in the game “Reporter at the zoo”
- Telling true stories – Preference for simulations based on fictional or non fictional stories

The exact wording for each question can be found at appendix 6. Also, based on the pilot study and on a creative process behind the game design, other features were assessed, again using a five point Likert-scale, as it follows:

- Choosing the titles for the news cover
- Writing a news piece at the game “Let’s write a news story”
- Selecting pictures at the Game “How are news made”
- Having a recap at the end of each game

Competences were assessed in the survey by an open question, as enunciated in appendix 6.
Screen capture

Individual computer interaction with the game was recorded with the same screen capture program called Fullstory. Numbers were assigned to each participant to facilitate analysis.

Participant observation

During the entire workshops, I took notes of participants’ comments and reactions. Also, although field notes were taken, the workshops were audio recorded leaving me more available to focus on facilitating and moderating the workshop as well as to be more attentive to non-verbal clues. Immediately after the end of each workshop, I also took more notes of aspects which I had not had the chance to write before.

During group discussions, which were held at the beginning and at the end, notes were also taken in flipcharts to be examined later on. The questions included in the flipcharts at the beginning of the workshops were:

- What is news?
- What features would you include in a prototype to teach children about the news?

Topics included in the flipcharts at the end of the workshop were:

- Lessons learned
- Things I liked the most
- Things I disliked the most

5.4.3.3. School experiment and intervention - Procedure

Children were recruited through the school. Consent forms were sent to their parents to fill in a week in advance. On the workshop day, children came to the
computer room of their school accompanied by their teacher who stayed in the same room for the entire duration of the workshop.

**Workshop**

The workshop started with all children at the center of the room and their teacher introducing me. I then took the lead and continue presenting myself. I would say that I was a student like them, explaining what I was studying. I secured them that they were not being evaluated in any given moment of the workshop. On the contrary, I asked their help to evaluate my work. I also repeated in other words the content of the consent form, stressing that they did not had to answer all questions, that they could interrupt whenever they wanted to and that it was ok if they did. I also explained what was going to happen during the workshop, encouraging them to ask questions by raising their hands at any given time they needed to.

Then, I started by asking what they thought news is and I would write their answers on a flipchart, that was later used for analysis. Next, I also asked what features would they include in a digital platform about the news, and again, I wrote their answers on another flipchart. In this initial stage I tried not to take part on the discussion. I just asked questions and wrote their answers.

Next, I invited them to seat in front of a computer which would already be set up to start the questionnaire. With the second graders I went question by question as a group, reading everything to make sure everybody understood. With the third and fourth graders, I let them go through the questionnaire on their own.

After finishing the pre-questionnaire, I invited them to explore the platform on their own, starting by the games. The sessions were open and some children asked questions. Often I would answer them back with helping questions like: “do you remember what the editor told you at the beginning of the game?”

After having played with all the games and exploring the other platform categories I asked them to go back to the questionnaire form and finish the post-test. When they were all done, I invited them to seat on the center of the room again.
Using flipcharts again, I asked them what was their favorite parts of the platform, and why. Additionally, I asked them what had they thought they had learned while using the platform. By the end of that discussion I assumed a more active role, validating their answers and completing them with more information. Then, I proceeded with the read aloud of the same three non-fiction stories about journalism, used during the pilot study. Although this study was no longer taking place at a library setting, I decided to keep the three read aloud stories at the end, because children responded so well to it during the pilot study. In the case of the fourth grade group we only had time to read one story, though, because they arrived late and had to leave earlier than the others, as the room was booked for a different school activity.

5.4.3.4. School experiment and intervention - Data analysis

Survey

Descriptive frequencies for all survey questions were analyzed, using SPSS. In addition, and for further analysis comparison purposes, questions about current events knowledge were recoded into right (1 point) or wrong/unknown (0 points). Questions about news socialization were recoded into yes (1 point) and no (0 points). A Pearson product-moment correlation coefficient was computed to assess the relationship between the questions within each variable. Reliability measures, like cronbach alpha, were also performed to examine whether questions could be grouped into single variables like current events knowledge and news socialization.

With the questions grouped into variables, another series of correlations for all grouped variables were computed to examine the relationship among variables like age, current events knowledge, news socialization, net consumption and prior news literacy level.

In order to test change between pre and post news literacy test, each test question was recoded into a uniformed scale as it follows: correct answer (1 point),
incorrect answer (-1 point) and unknown answer (0 points). This was done for pre and post news literacy questions.

The sum of the result of each question was computed forming two new variables: pre news literacy level and post news literacy level. Next, a series of paired t-test was performed to examine whether the game had produced a change in the participants’ levels of news literacy or not. Other descriptive frequencies, like mode and median, of both variables were also compared without any specific test.

**Participant observation**

Field notes, flipcharts, screen capture and transcribed audio sessions were read multiple times and analyzed through a method of constant comparison, using a grounded theory approach which extracts meaning from people’s experiences about the phenomenon of interest (Corbin & Strauss, 1990). Based on the procedures and evaluation criteria suggested by Corbin and Strauss (1990), I examined the data looking for conceptually similar responses, with an open coding procedure, and grouping them together to form categories.

**Screen capture**

A technical problem prevented from matching participants’ questionnaire results and field notes with the recording of their user experience, in about half of the sample. Therefore, although a very big amount of data was collected, screen captures were not analyzed much further as a whole.

### 5.5. Ethical considerations about carrying out research with a vulnerable population

The consent forms for the pilot study and the final testing were written based on information provided by the online training course on human subjects’ research
from the American Review Board (IRB), undertook, in 2016, by the researcher. Given that there is no Ethical Review Board at the Portuguese University where this thesis is being submitted, no further steps of approval were given.

All children participated in this study voluntarily and they were informed that they could suspend their participation at any given moment. No images were recorded. All children were given confidentiality treatment and for that reason no names are mentioned in this thesis. Both children and their guardians signed consent forms, which can be found in appendix 7. Forms used different wording adapted to the target age but the same content. Time was given to participants to voluntarily decide if they wished to participate in the research. All participants were informed about who the moderator was, to whom she worked for, why she was holding the workshops, what was the main purpose of the research and the risks and benefits of taking part in the research. Children were informed, again, orally at the start of the workshop, that they could suspend their participation at any given moment, and that they could opt for not answering certain questions, if they did not wanted too, but keep on participating, if they wanted too.

To children, it was also explained that they were not being evaluated. At the beginning of the intervention I always repeated the idea that every answer is a good answer even if it is a no answer. “I am not judging any answer you give me. Instead I am asking your help to evaluate the prototype. You see, I am a student like you and what I am asking from you is to imagine that you are the teacher evaluating the prototype”, I said in all workshops and interviews with children.

During the entire duration of the study children were always treated with respect and justice. Their autonomy was always acknowledged.

The collected signed consent forms are being kept by the researcher until one year has gone by after the data analysis is complete.
CHAPTER 6

6. Results

The main research questions of this study are: How do digital platforms propose to educate children from seven to ten years old about the news? And how can news literacy education in digital media be improved? This chapter presents results from both stages of research – each section corresponds to a specific research step: exploratory study (6.1.), formative evaluation (6.2.), prototype (6.3.), libraries pilot test (6.4.) and school experiment and intervention (6.5.).

The studies implemented during the first stage contributed to further understanding about formats (RQ 1.1.) and competences (RQ 2.1; 2.2.) included in digital platforms to teach children about the news. The studies developed during the second stage contributed to further understanding on the impact that such elements have on children in terms of engagement (RQ 1.2; 2.3.) and learning efficacy (RQ 2.4.).

6.1. Results from the first stage of research

6.1.1. Exploratory study’s results

In this exploratory study, five children assessed six platforms about the news. This first empirical approach allowed assessing children’s perspective and to include their view in the overall definition of the broader research, as well as have their input in the definition of the sample for the formative evaluation. This study also contributed to adjust the age range of children addressed by subsequent studies of this doctoral research.
Table 5 details the characteristics of each platform assessed by the participants. Some were websites, others were apps; most were free of charge, but one was paid (News Tutor). While participants were exploring the platforms, some commented out loud their user experience, others kept most of the comments for the interview done at the end.

Table 5. General Characteristics – Description

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>Update frequency</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td><em>Newsround</em> started as a tv show for 6 to 12 year old children in 1972. It is one of the <em>First Newscasts</em> for youngsters. The website is located within CBBC which is the BBC strand for 6 to 12 year old children. And CBBC website is within BBC website.</td>
<td>Daily - several news articles per day</td>
<td>Free</td>
</tr>
<tr>
<td>First News</td>
<td><em>First News</em> is the UK’s only newspaper for young people and the widest-read children’s publication in the country. It was founded in 2006.</td>
<td>Monday to Friday - one edition per day</td>
<td>Online Free version; Weekly paper - £2,50</td>
</tr>
<tr>
<td>Dogonews</td>
<td>Website launched in 2010 in the US, with the goal of presenting current events according to Common Core ELA, Science and Social Studies.</td>
<td>Average of one news story three days a week</td>
<td>Free</td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td><em>News-o-Mattic</em> is an app for children that presents news organized by daily editions. Belongs to Press4kids which was founded in 2012.</td>
<td>Monday to Friday - one full edition per day</td>
<td>Free 10 first editions; unlimited access - $19,99</td>
</tr>
<tr>
<td>Elements of Verification</td>
<td>The <em>Elements of Verification</em> is a 3 episode-series for the web produced in 2011 to teach on the principles of Verification as outlined by Bill Kovach and Tom Rosenstiel.</td>
<td>N/A</td>
<td>Free</td>
</tr>
<tr>
<td>News Tutor</td>
<td>App aimed at teaching news consumers about the subtle differences between quality and careless journalism, launched in 2013.</td>
<td>N/A</td>
<td>Paid - €0.99 for the app</td>
</tr>
</tbody>
</table>
**Children’s general characterization**

All participants were good students with a high sense of the world around them, coming from socially and economically privileged families. Their fathers were entrepreneurs, financial director, researcher/investigator, pharmaceutical commercial and diplomat. Their mothers were dentist, government worker, journalist, chemical engineer and diplomat. Most parents hold either a BA or a MA degree.

All children, except one, said that they usually access the Internet alone. They all own a tablet and a computer. Two of them have their computers in the bedroom, while the other three had their computers in a common space, like the living room. Four of them also own a mobile with access to the Internet. Four of them usually access the Internet at home, while one mostly accesses the Internet at school. Four of them use the Internet half an hour to one hour everyday. The other one spends the same amount of time on the Internet (half an hour to one hour), but only accesses it twice a week.

**Children’s relationship with the news**

Apart from general demographics, Internet consumption habits and parents’ characterization, some questions about children’s relationship with the news were also asked in order to better characterize their background in terms of news consumption and news socialization. When asked if they had ever used the internet to look for the news by their own initiative, two children answered yes, three answered no. Out of the two who answered yes, only one was used to look for the news on the Internet on a regular basis, which is surprising given he was only 11 years old. Out of the three who answered that they never used the Internet to look for news, two said no because “they never felt that need” while one answered no because she does “not like the news”.

However, when asked if they had ever read the news on the Internet (including through email, social networks or mobile), four answered yes. One
specified that he read the news on Twitter and other said she read the news on the website CBBC (based on a TV news show for children, from the BBC).

Two children said that they were involved in a journalism project at school and they had already studied news writing at school too. Four children had read and analyzed a news story in English class.

Questions about their parents Internet and news consumption habits were also made. Four children said they use to see their fathers consuming news on paper everyday, but not their mothers. Four children said they are used to see their mothers (and fathers) watching the news on TV everyday or very often in the week. None said that their parents listen to the news on the radio.

Summing up, these children presented previous knowledge about journalism practice; high levels of Internet consumption, including checking the news; and high levels of news exposure through their parents. Such set of characteristics suggests they may have a high frame of reference about journalism for their age.

**What did children had to say about the six platforms**

As mentioned before, children were asked to examine two kinds of platforms: four were like news websites for children (Newsround, First News, DogoNews and News-o-Mattic) and two were educative platforms about how the news is made (News Tutor and Elements of Verification). Children were asked to analyze platforms in terms of navigation, usability, visual elements, gaming, interest and likeability.

**Navigation**

Interviewed children perceive navigation as an important aspect. During the interview, when they were explaining why they liked or disliked certain projects, many children were spontaneously commenting navigation issues. For example,
News-o-Mattic was placed at the top of their preferences with several children mentioning that the reason for that was that it was easy to navigate, among others. Dogonews was classified as the least favorite and one of the reasons pointed out was that it “was not easy to use”.

When asked to rank the projects in terms of navigation, Newsround and News-o-Mattic more often appeared at the top of their preferences, as seen in graph 1. Newsround presents a traditional structure and navigation experience, similar to most news websites. However, the app News-o-Mattic is probably the most original assessed platform in terms of navigation. News-o-Mattic presents one edition per week, gathering all weekly news titles on a single screen. By clicking on a news title, users access to a new screen with links for several kinds of inputs about that news story. Those inputs are always a news text, sometimes a map or a glossary, for example. There is always the option of listening to the news text with a voice-over.

![Graph 1: 'The site is easy to navigate'](#)

**Design and multimedia**

Graph 2 shows that children prefer the visual design of Newsround, News-o-Mattic and News Tutor. Children said they also preferred News-o-Mattic due to their
use of primary and happy colors mixed with a visual “simplicity”. Dogonews was pointed as one of the least favorite projects by most children, because of its “bad layout”.

In fact, the platforms that use more visual elements are Newsround and News-o-Mattic. Both use the biggest size pictures and both exhibit video produced by themselves. Being the most colorful, News-o-Mattic has a unique approach - for each news article, this project always produces its own set of multimedia features. On the right side of the screen of each news article, there are always links to “facts”, “act”, “slideshow”, “video” and “read to me”. First News has a long tradition as a newspaper for children. However it does not presents text longer than any of the other projects. Plus, occasionally they publish videos produced by them. Dogonews uses smaller pictures. In the homepage they only publish thumbnail size like pictures. And during the data gathering of this study I did not found any video produced by them. They publish videos in some news articles, though, sometimes even more than one video per article, embedding them throughout the text. But those were always from external sources.

Regarding the educative platforms and visually speaking, both News Tutor and the Elements of Verification use similar features. However the visual design of the projects as a whole results quite differently. News Tutor is designed on a red background, while the Elements of Verification is on a white background. Whereas the first uses two types of font (one of them similar to Comic Sans), the second uses Times New Roman. Than, as the first uses a combination of several visual elements (drawings, arrows, buttons...); the second does not, and it shows an old fashioned and simple button design, similar to the shapes that one can find in Office 2003 version.
Throughout the user test and interview, several children commented they liked video and showed a preference for the news content that contained video. There was even one interviewee that only accessed detail view pages which contained video. That subject only watched videos and never read a text during the hour-long meeting. He seemed to only stop to read with the News Tutor app.

When asked what were their favorite and least favorite projects one of the subjects said News-o-Mattic was the one he disliked the most because there were no videos. Yet it is important to add that News-o-Mattic had videos. The comment of that child may suggest that perhaps the links to the videos are not well placed. “I think the sites get a lot more interesting if they have videos”, commented another children. In sum, findings suggest that videos are an important feature for children.

**Gaming and learning**

*News-o-Mattic* was the children’s favorite platform not only due to its navigation and visual characteristics, but also because of its content, selection of news and for offering games. “I liked the way it was full of colors and gave interesting facts and that it had puzzles”, said one child. Likewise, children also said they preferred *Newsround* because of the way they write the articles and select...
them. One child said he liked these two platforms more, because he was learning something with them.

During the user test, several children spontaneously commented they liked games, as they also had expressed they appreciated videos. One said: “I like when they have games. You feel that you are learning something”. Indeed, most examined platforms included game features, but in different ways. The news platforms often had current events newsgames like quizzes, word crosses or puzzles. The educative platforms (*News Tutor* and *Elements of Verification*) are a news literacy newsgames.

The idea of what constitute a game is not clear for all children. One child asked: “Where are the games? Are polls a game?” This was not the only one inquiring about the *First News*’ polls. Another one asked what a poll was.

Most interviewees seemed to be really engaged with the *News-o-Mattic’s* games. Although almost all faced some technical difficulty or error while using that app. Actually, this was the app which presented more problems of that kind during the user test. No subject was able to play the puzzles, for example. That game had the instruction: “shake”. And all the five subjects tried different ways of shaking the *iPad*. But none seemed to have any effect. In the end, they all would exit that game and they would try another one. However this kind of difficulty did not seem to affect their overall perception about the project as later, in the interview, most of the children elected this as their favorite.

The sounds and colors produced by the websites or apps, when they win or loose the game, also seemed to be important as this was probably the time of the test when the subjects exhibited the biggest emotion. After a victory, some would laugh, move the body and face in a content way and would comment with a happy voice the result, talking more than usual, particularly with *News Tutor*. Each time they lost, most exhibited signs of frustration with their voices or with their body language. They also commented on that.

The *News Tutor’s* game feedback produced an interesting divergent effect on participants. The first child would laugh out loud each time the right choice was done, but always skipped the lesson recap slides. The second participant showed
exactly the opposite attitude. He always stopped to read all the lessons carefully. The third child was really engaged in reading the lesson recap slide, but only when he had failed to select the right option. In that situation he stopped to comment how the message made sense and how he should have thought that beforehand. But when the right choice had been made, he would move forward through the lesson more quickly. The forth only read the lesson when he had chosen the right question, but he skipped them when the wrong choice had been selected. So it seemed he would only read the lessons as reinforcement of his own beliefs. The fifth only read the first lesson and skipped all the others.

Most of the respondents said that News Tutor was the project which was teaching them the most and this was one of their favorites too. “Even though I didn't learn about the news [current events], it was explaining me how to put the cameras and interviewing the people, all the stuff I would have to do if I would like to be a reporter.” Another child appreciated that a wrong answer came with an explanation: “Because when I got the wrong answer it showed why it was wrong and also the correct answer.” Also, paradoxically, one child said about the News Tutor: “I liked the game, but I don't like the games that you learn with them”.

Children were also asked what elements they would include in a platform about the news for children. They mentioned technological aspects and aspects related with content as shown in table 6. Some children mentioned that they would include lessons about journalism, showing appreciation for news literacy education in a digital environment. They said they liked to learn about how journalists work and that they would like to learn how to write news. They were also interested in News Tutor’s approach to video and to have the chance to learn about how to use a camera to shoot news.
Table 6. What elements would children include in a digital journalism platform for children

<table>
<thead>
<tr>
<th>Technological Elements</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image</td>
<td>Interesting facts (from day to day)</td>
</tr>
<tr>
<td>Colors</td>
<td>I would not concentrate only in just one thing</td>
</tr>
<tr>
<td>Layout of the space – Front page with a little bit of news, maybe one sentence; then each other page should detailed information about the topic</td>
<td>Only big news, not details</td>
</tr>
<tr>
<td>“Games that are fun”</td>
<td>Sport</td>
</tr>
<tr>
<td></td>
<td>Technology</td>
</tr>
<tr>
<td></td>
<td>Stuff about the world</td>
</tr>
<tr>
<td></td>
<td>How to write about journalism</td>
</tr>
<tr>
<td></td>
<td>“Because of News Tutor I would like to add that News Tutor would give me an idea how to put the camera and shoot the news (where would it be...)”</td>
</tr>
<tr>
<td></td>
<td>Animals</td>
</tr>
</tbody>
</table>

The main outcome from this exploratory study for the broader research was exactly the impression that children are very engaged with digital platforms that explain them how the news is made. Thus, from this moment forward, the research angle was adjusted to focus on educative platforms about the news.

Also, as participants of this exploratory study seemed to understand the platform’s message so well, and because some of the platforms targeted even younger children; from this moment forward too, I decided to assess younger children, from seven to ten years old.

6.1.2. Formative evaluation’s results

The formative evaluation study assessed nine platforms which propose to educate children about the news. This analysis particularly addressed questions about what formats related with gaming, storytelling or educative features are used.

---

7 Some components of the results of the formative evaluation study were presented and published at three separate events and parts of those papers are reproduced in this section *ipsis verbis* (Campos, 2017a, 2018a, 2018b).
in digital platforms to teach children about the news (RQ1.1.); what competences (skills and/or knowledge) are being taught (RQ2.1.); and how are those news literacy competences laid out (RQ2.2.).

This section presents results by examined platforms: the app News Tutor, the website Elements of Verification, the MOOC Checkology, and the games from the Newseum, those being, What Would You Do, Newseum News, Be a Photographer, Race for Your Rights, Make a Match and Be a Reporter.

**News Tutor**

*News Tutor* is a paid app for *iPad*, developed by journalist Colleen Bradford Krantz. It includes several news literacy lessons, like how news are gathered (how to choose the sources to interview and how to do an online search); principles about multimedia selection and editing and news construction (angles, fairness, accuracy and bias); with a strong emphasis on ethical issues overall.

The navigation structure is dependent and the app is in between a quiz game and a linear interactive narrative, in which the player assumes the role of a news intern who has several news assignments to cover. On the first assignment, the boss sends the news intern to report “fair and accurately” a political protest. The first task is to choose the video which best represents the scene, having to choose between two different shots of the same protest: one is a close-up angle of a protester yawning and the other is a wider angle showing many protesters shouting. The task is to choose the one which represents fairer and more accurately the protest. The second question also has to do with a fair representation: who to choose to interview. For each question there are usually between two and three options. Only one is correct. After choosing, one sentence feedback is given explaining why that was the right or wrong choice.

Each assignment has ten questions, covering issues like the best camera angle for an interview, ethical issues about re-enact the events, ethical issues about altering the scene display for aesthetical purposes, music choice for the video, respecting private property when shooting, how to do a Internet search, assessing
sources credibility, bias, how omitting information may lead to inaccuracy or misleading information, difference between fact and opinion, or the wording of questions. Some topics, like the camera angle choice, are repeated in several assignments, reinforcing the message.

The second assignment has to do with health effects of wind turbines, the third assignment has to do with undocumented immigrants, and the fourth has to do with a report on the economy.

By the end of the first assignment, the player is promoted to reporter and gets the second assignment and by the end of the second assignment the player is again promoted, this time to a senior reporter, and so on and so forth. Overall, the game includes four assignments and 40 questions. Also, in the middle of the quiz, some lesson plan ideas are suggested.

The only audio elements are the sounds of the videos and a cheer or evil laugh when the correct or incorrect answers are chosen, respectively.

According to the interview with the News Tutor’s author, Colleen Bradford Krantz (2017, February 7, telephone interview), each platform assignment was designed to be used in class periods of 45 minutes to one hour. Krantz (2017, February 7, telephone interview) also stated that half of the people who are buying the app are individual users, “probably home school parents”, and the other half are teachers who were buying it to use in the classroom. She explained that her interpretation was based on the fact that half of the purchases were made individually and half were made in “bunches” of 30 at a time. According to data she mentioned in the interview, the vast majority of News Tutor users are located in the United States; about 1/8 are in other English speaking countries like Canada, but there are also a few users accessing it from Mexico (Krantz, 2017, February 7, telephone interview).

Krantz (2017, February 7, telephone interview) built the platform, hiring a videographer and an external programming company, thanks to a combination of a grant and personal funds. Her target was children from six to eleven years old. Krantz (2017, February 7, telephone interview) considers that, according to their age,
children would have a different understanding of the app: “At six, they will pick up most of it; at eight they should pick it all up; at eleven they should find it very easy to understand and more likely to apply it later. The safest range would be around third and fourth grade, nine and ten years old” (Krantz, 2017, February 7, telephone interview).

After having worked as a press journalist for about ten years, Krantz shifted to Broadcast TV. The urge to build News Tutor appeared because she felt “frustrated” with the way her peers represented different points of view, she shared in the interview:

“I thought that people were not aware that they were only getting one point of view. (...) I could talk with adults. But I thought children would be harder. At that time, the News Literacy Project was sending one journalist per class, in Chicago area. An app seemed more efficient. (...) And if you keep children engaged, you keep them motivated.”

(Krantz, 2017, February 7, telephone interview)

Several of Hobbs’ (2010b) news literacy learning principles can be identified in the News Tutor app. The way how the quiz is designed, by presenting a story, questions and constant feedback with explanation and context, clearly “connects comprehension and analysis” (principle two). Principle number five – which is “use new ideas to directly support the practice of critical analysis and media composition” – is also present as the same journalism topics are presented repeatedly with new focus on different assignments.

The emphasis this game puts on the selection of image angles, music and other multimedia editing aspects, also supports Hobbs’ principle number four and six: “focus on constructedness” and “use of collaborative multimedia composition to produce meaningful and authentic communication” (Hobbs, 2010b). I also consider that the game partially supports principle number seven – “make connections between the classroom and the world” – because the game makes a bridge between
practice and theory while combining narratives about news stories with a theoretical approach to journalism ethical issues. Hence, it makes a connection between the player and the world.

**Elements of Verification**

*Elements of Verification* is a free of charge interactive narrative available online, developed by the Committee of Concerned Journalists (Carter, n.d.) and based on the work by Kovach and Rosenstiel (2001). It has three episodes: *School Tragedy; Information Meltdown;* and *The Prosky File.* This platform includes lessons on ethical issues (bias and accuracy), news gathering and construction (sources, interviews, verification, news angles) and media systems (revenues, newsroom cuts, and competition).

The first story is about the decisions that a new news director has to make about an ongoing school shooting. The news director had been recently hired to raise ratings at a TV news station. During the tragedy, the news crew has to make several decisions; all of those are extremely time pressured as events unfold live. They have, for example, to decide if they interview live one boy who allegedly is at the scene, without having much time to check his identity. The player also has to decide how to report on the number of casualties, while social media information conflicts with information from official sources.

The second story, *Information Meltdown,* is about a young lawyer who is traveling on business when she reads a comment on *Facebook* from an environmentalist blogger. The post says that a nuclear power plant, at the place where she is heading too, has just had a problem. The site from where this information is coming seems a little like a “conspiracy theory”. But what should she do, proceed with her travel or abort it? What should she believe and how should she proceed?

The third game, *The Prosky File,* is about a journalist who reports as a freelancer for his own blog, after having been fired from the newspaper where he used to work. This last game includes questions about managing a freelance career,
like where should the journalist post exclusive information first: on his won blog or on a TV segment. But the main focus of this last story is about how journalists should use multiple sources to verify information in search for independency and public truth.

As mentioned in the previous section, this platform does not seem to be targeting young children. Nevertheless, as children interviewed during the exploratory study seemed to have appreciated the assessed second episode, I decided to include it in this formative evaluation too, examining the other two episodes.

*Elements of Verification* presents many of the structural characteristics as *News Tutor*: the player as a journalist; a narrative about news events’ coverage in which the player assumes the role of a journalist and is confronted with several options about how to perform his/her job better; and getting feedback about what is right and wrong.

Similarly to *News Tutor* and following the same rationale, this platform exhibits several of Hobbs’ learning principles, such as “connect comprehension and analysis” (principle two), “focus on constructedness” (principle four), “use new ideas to directly support the practice of critical analysis and media composition” (principle five), “make connections between the classroom and the world” (principle seven). In terms of learning principles, I identified two differences from the previous analyzed *News Tutor*. Those differences are: it does not support principle six – “use collaborative multimedia composition to produce meaningful and authentic communication” – as it does not include as many options about image and sound selection as *News Tutor* did; but, in a way, it supports principle three – “ask critical questions and listen well” – as the narratives are more about how to gather information, build a news story by choosing the right sources and asking the right questions.
Checkology

*Checkology* is an e-learning platform, with hierarchical navigation, like a MOOC, hosted at the News Literacy Project website. The platform was created and launched after the fake news debate took off steam, in 2016, and as the title indicates it is mostly about raising awareness to be a better news consumer by learning how to verify information. Available online, it offers a free basic plan and a charged premium. The exact cost for the premium plan is not clear, but it allows grading students and have them participating in online discussions.

The News Literacy Project was founded by a former journalist, Alan Miller, during the school year of 2008/09. The project included training teachers for three to six weeks. Journalists would visit schools as part of the project. The *Checkology* platform started as an experiment with e-learning, where the News Literacy Project team tried to capture the lessons they had been sharing all those years in a digital environment (Adams, 2017, March 7, Telephone Interview). It was initially designed for the American population, but it is being used in 38 countries; the biggest group of users comes from social studies classes, but there are also people coming from English Language Arts class and from journalism classes which many high schools in the US have (Adams, 2017, March 7, Telephone Interview).

The platform main target is middle and high school students, between 12 and 18 years old. Despite the fact that it targets an older population than this dissertation, I decided to include it in this formative evaluation because it was the only e-learning platform about news literacy which I could find and, as such, it could be interesting to compare if the lessons and focus were much different from the analyzed games.

Lessons are organized in four teaching modules: filtering news and information; exercising civic freedoms; navigating today’s information landscape; how to know what to believe. Some of the specific lessons included are about how to categorize information, newsworthiness, news judgment, First amendment to the United States of America’s Constitution, digital information landscape, algorithms, misinformation and rumors and sponsored content. Overall, it focuses on evaluation of news content and not on news production.
Although *Checkology* is clearly not a game, it includes a points and badges system to award student’s progress and unlock a *Checkology* tool at the end, which allows students to make reports. As many other educative platforms now available in the USA, *Checkology* is designed to be used by a whole class in interaction with their own teacher. There is a discussion section and the teacher can grade student’s work.

There is plenty of video throughout the lessons, but overall the platform presents a simple visual design. Although it touches on many of the same topics as some of the games included in this formative evaluation, *Checkology* goes into much depth in each topic. While it does not have simulations, it includes plenty of videos with practical information.

It supports at least three of the seven learning principles suggested by Hobbs (2010b). It supports principle number two – “connect comprehension and analysis” – as it uses real cases to explain theoretical principles and it encourages its users to analyze news stories, their purposes, their sources, and so on. In a way, it also supports principle number three – “ask critical questions and listen well” – while it encourages users to use critical thinking when evaluating the credibility of a news story. It teaches how to question the news story. Finally, while teaching users to question the news story, it also supports principle four – “focus on constructedness”. We may also consider that it connects the user and the world (principle seven) as it explains how journalists work to a general audience, as well as it uses real life examples to explain and to apply the concepts.

**What Would You Do?**

*What Would You Do* is a single-player quiz presented on a touch-screen in a cubicle at the Newseum in Washington D.C.. Lessons included in this game are about journalism ethics. On the main screen there are two rows of five thumbnails each. In each of those thumbnails there is a picture and a title. Oddly, the space for the tenth thumbnail is empty. Each thumbnail corresponds to a real situation that happened some time in the past. The player starts by choosing one of the nine cases. The hierarchy of navigation at this point is independent. By touching in one of the
thumbnails, the user is directed to another screen. Then, the model in each one of the nine cases is exactly the same. It starts with a question about what the player would do. The player can choose between a ‘yes’ or ‘no’ kind of answer.

For example, in the first case entitled “Pretend to be crazy”, the question is “Would you pose as a mental patient to report on conditions at a mental hospital?” The options are: “Yes. It is the only way to find out the truth” or “No. It is deceptive.” After making that choice, a new screen shows up. On the left up corner of that new screen there are three graphs under the title “This is what other visitors and journalists think”. Under that, there are one or two short videos from journalism professors and/or journalists explaining why they answered the way they did. These videos offer an analysis of what the interviewee considers to be the right or wrong choice on that situation. Then, on the right side of the screen there is a box with information about what happen in the real situation.

Classifying this as a game may be debatable as there is no score and no real game storyline. Rather than a game, What Would You Do is perhaps more accurately classified as a digital learning platform. Nevertheless, I decided to include it in this analysis sample because its goal is to teach about news literacy in a digital and interactive way.

Also, given the content of some cases, I would argue that the target group would be older children. However, the Newseum representative says that their games are “fun for all ages” and adequate for all school age visitor (Gavankar, 2017, February 3, Email Interview).

At least four of Hobbs’ (2010) learning principles can be identified in this game. I consider that this game “focus on constructedness” as it explains how certain news stories were told and their ethical implications (principle four). It also provides a broader context to the news story (principle five). While providing this framework to true news stories it also improves comprehension and analysis (principle two). Then, because this game only deals with true stories it can be argued that it makes a connection between the player and the world (principle seven).
**Newseum News**

*Newseum News* is a quiz type of game presented on an oval interactive table. With a non dependent hierarchy of navigation, the game can be played from one to eight players at the same time. There is the possibility of playing alone or in two teams of a maximum of four, against each other.

![Newseum News screen table game.](image)

There are two lessons in this game. The main goal of the game is to teach about journalism ethics. But the game also teaches about journalism time management and editing by simulating the newspaper deadline pressure and making the gamer choosing which stories to put on the cover.

The table is divided in half and the game starts with an empty newspaper cover on each half. Coming from the cover, small journalist figures start walking around the table. Each one holds a colored folder. No instructions are given. But as soon as the users move their hands over the table they realize they can drag and drop a journalist in a square on the boarder of the table. There are four squares of that kind on each side of the table – a square for each player.

Each time the player drags and drops a walking reporter, the game pops up a question. Then, the player has to choose between a ‘yes’ or ‘no’ answer. Different sounds are heard according to a right or wrong choice. If the answer is wrong, the screen shows the word ‘Incorrect’, and a sentence explaining why the choice was
wrong. If the answer is right, the screen shows the word ‘Correct - You filled a story on the newspaper’ and, then, a blank space on the cover of the newspaper gets filled in. The colors of the folders that the reporters hold on their hands correspond to the colors of each blank space on the cover.

After a certain amount of time, the game warns that the deadline is approaching and that the opposite team may have their cover ready sooner. So there is an added pressure. The game is won by the team who fills in all the blank spaces on the cover first.

I considered that this game incorporates four learning principles as defined by Hobbs (2010b). First, it connects comprehension and analysis of news as it requires the player to read the news and answer questions about it (principle two). At the same time it “focus on constructedness” as it makes the player pay attention to how the story is written (principle four). Although players are not required to build new media, I suppose that this game partially supports “collaborative multimedia” as it joins team players in the construction of a newspaper cover (principle six). I also consider that it partially implements the connection between the classroom (in this case the participant child) and the world as the player has the option to choose which news to read and select throughout the game (principle seven).

**Be a Photographer**

*Be a Photographer* is a single-player first person simulation about photojournalism, displayed on a touch-screen. The hierarchy of the navigation is dependent.

The game starts with a video which takes place at a newsroom, where an editor figure introduces the game rules. The player is a photojournalist. On that presentational video, the editor explains what the player/photojournalist has to do. He says that a little girl is about to drown and that the rescue team is trying to help. The player’s mission is to shoot the best image that captures the story.
Then, the user is presented with three simultaneous videos reels. Each video reel shows a different perspective of the scene by the river. The player can choose which video reel to be placed on a wider screen where the picture can be taken. All images are live action and cannot be paused. So the player has to make decisions on where to look and what pictures to take in real time, while events unfold.

One video reel shows the little girl’s parents by the shore of the river talking with the photographer. Another video reel shows the little girl, who has just fallen off a kayak, and somehow managed to grab a branch by the shore of the river. But she is almost drowning. Then, the rescue team crosses the river by boat to save her. They successfully grab her and bring her on board. While that happens, on the first video reel, the parents start discussing with other members of the rescue team on land. On the third video reel, two girls make complements to the photojournalist/player, saying how great the job he has is. Meanwhile, on the second video reel, the rescue team reaches the shore with the girl and brings her to an ambulance. Her father approaches her. He seems very relieved and happy for her rescue.

After that, the game continues at the newsroom again. The editor shows up and asks the player to choose the best picture taken for the cover. On the next screen, the player can see all the pictures which he or she has taken.

While the game does not exactly gives score; at the end the editor shows up again in a video. At that time, the editor gives feedback on the picture chosen. The feedback is different, according to the choice made. For example, the picture with the girl on the way to the ambulance with the father by her side, leads to a big compliment. The editor says that the picture captured the whole story. Whereas a picture with the two “groupies” flirting with the photographer makes the editor fire the photographer.
In this game, I identified six out of the seven Hobbs’ learning principles. While setting the scene where the news is actually taking place it provides a sense of how news is constructed (principle four). On the other hand, while the game requires the player to choose what pictures to take and later what pictures to select, having feedback on those choices, it guides the user through visual comprehension and analysis (principle two). The game partially supports principle three too as it forces the user to listen well to what is being said in order to make the right choices in image selection. The feedback given by the editor directly supports the lessons given with context and in a natural atmosphere (principle five). I consider that the game also partially implements principle six, as the player has to collaborate with the system to produce images. Finally, I also understand that the game partially implements principle seven as the simulation makes the player assume a stronger connection with how journalism is actually done in the ‘real world’, using real images in real time.

**Race for Your Rights**

*Race for Your Rights* is a single player quiz about the First Amendment to the Constitution of the United States of America. It starts with a screen where the player has to choose between adult or student level. The navigation hierarchy is dependent from then on.
This is a simple quiz game integrated in a graphic animation of a race between two people – the player and his/her adversary. The constant running gives a certain feeling of urgency to the game, although there is no time limit. While those two characters run, questions pop up for the player to answer with multiple choice. The player cannot interact with the runners. But the runner may stumble or speed up if a wrong or right answer is given. The only way the player may learn is by noticing the answer was right or wrong. According to the number of failed and not failed questions, the racer wins or looses the race. I could not identify any of Hobbs’ (2010b) learning principles here.

**Make a Match**

*Make a Match* is a single player game to match cards about journalism history with a non dependent hierarchy of navigation. On the right side of the screen, a sentence presents information whenever a pair of cards is matched; but, most of the time, there is not enough time to read it because the game doesn't pause for that. To win the game, the player not only has to match all the cards but also do it within the time limit. Again, I could not identify any learning principles as defined by Hobbs (2010b).

![Figure 6. Detail view of “Match the Cards”](image)
**Be a Reporter**

*Be a Reporter* is a single player first person simulation about practical reporting skills - like information gathering and interviewing techniques - and also about more ethical and theoretical lessons - such as bias and balance and distinguishing between facts and opinions. Although there is a somehow linear storyline, the navigation structure is non dependent.

Once again, in this game the player assumes the role of a reporter, while the figure of an editor gives instructions and feedback. The scene takes place at a circus. Somebody has freed all the animals and the editor wants the reporter to find out who did it, how and why. Unlike the *Be a Photographer*, on this game, there is no live action image. All graphics are cartoon animated with a childlike style. Users can move in the scene almost like in a 360 degree video. Users can also ask questions to people around. The interview style is closed in the sense that the user has to choose the question to ask, from a list of two or three possibilities. There are usually one or two obvious questions to pursue and one completely off task. If the player chooses that somewhat silly question, the editor shows up reminding him or her of the task to do. There are several characters around the circus to interview: a police officer, protestors, the circus director and other circus workers. Although it is not clear from the beginning, time does count. The goal is to file the story for the cover of the newspaper. At the end, the editor gives feedback about it.

This game incorporates five out of the seven learning principles defined by Hobbs (2010b). As the player pretends to be a journalist, he/she learns about constructedness (principle four) and the editor feedback presents ideas in context, related with the analysis (principle five). The game requires the reporter to choose from the most pertinent questions to ask and to carefully listen to the answers in order to solve the mystery (principle three). While collecting data to build the news story, the player extends comprehension and the ability to analyze the story that is presented at the end of the game (principle two). It can also be argued that, in a way, this game starts from the player’s interest in the sense that it allows the user to choose where to go and with whom to talk with in order to collect information (principle one).
The reason to include all these games in the Newseum collection was their acknowledgement of the importance of interactivity. "Ten years ago, when deciding the Newseum, we knew the future was in an interactive experience and wanted each exhibit to have yet another way to comprehend content", explained Gavankar (2017, February 3, Email Interview). These games are accessed by individual users visiting the museum and by children in school field trips, mostly from the United States of America.
Side note about bridging with teachers, school curricula, parents and others

It was curious to observe that most of the evaluated projects did not contain a specific section targeting teachers and/or educators, Checkology and News Tutor being the big exception to that. Nevertheless, the four news platforms assessed during the previous exploratory study somehow bridge the digital content with educators.

First News seemed to support a relationship with the schools, by offering .ppt presentations to use in the classroom. They also have various resources for several subjects (not only about journalistic writing) organized by school years. Then, Dogonews’ homepage, allows to organize the categories by grades instead of topics. Dogonews also has a section exclusively dedicated to teachers. Next, News-o-Mattic developed another app just for teachers. Finally, Newsround includes a parental control lock, which is located within the BBC website.

Summary

Most games use the editor character to provide feedback and that contributes to deepen the educative approach in a playful way. That is the most common storytelling element found, as illustrated by table 7. Other commonly storytelling elements found is the use of mystery and simulation. When first person simulation is presented, no real life story is incorporated and vice-versa. Then, other less common, but still present, storytelling element is the possibility of asking questions.
Table 7. Storytelling Elements

<table>
<thead>
<tr>
<th>Game</th>
<th>Simulation - player as journalist</th>
<th>Editor character giving feedback</th>
<th>Possibility of asking questions</th>
<th>Use of real life story</th>
<th>Mystery factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. News Tutor</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2. Elements of Verification</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Checkology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Newseum News</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Be a Photographer</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Race for Your Rights</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Make a Match</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Be a Reporter</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Table 8 summarizes findings about gaming and certain interactivity elements. There we see that most games were designed for single player use in a variety of gaming approaches like quizzes or simulations.

Table 8. Gaming and Educational Interactivity

<table>
<thead>
<tr>
<th>Game</th>
<th>Type of Game / Platform</th>
<th>Game Elements (Points, Rewards...)</th>
<th>Number of Players</th>
<th>How the lesson is delivered</th>
<th>lesson is</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. News Tutor</td>
<td>Non-linear interactive storytelling</td>
<td>Right/wrong answers are immediately signaled with audio effects and at the end a total score is presented</td>
<td>1</td>
<td>Background context / Theoretical feedback after each option</td>
<td></td>
</tr>
<tr>
<td>2. Elements of Verification</td>
<td>Non-linear interactive storytelling</td>
<td>Star system at the end of each story</td>
<td>1</td>
<td>Background context / Theoretical feedback after each option</td>
<td></td>
</tr>
<tr>
<td>3. Checkology</td>
<td>Not Game – MOOC</td>
<td>Points/badges</td>
<td>Class</td>
<td>Constantly, with videos, texts, interactive quizzes...</td>
<td></td>
</tr>
<tr>
<td>4. What Would You Do?</td>
<td>Single Player Quiz</td>
<td></td>
<td>1</td>
<td>Background context / Theoretical feedback at the end of each case</td>
<td></td>
</tr>
<tr>
<td>5. Newseum News</td>
<td>Quiz / Simulation</td>
<td></td>
<td>1-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Be a Photographer</td>
<td>Simulation</td>
<td></td>
<td>1</td>
<td>Occasional background context / Theoretical feedback throughout the game</td>
<td></td>
</tr>
<tr>
<td>7. Race for Your Rights</td>
<td>Quiz</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Make a Match</td>
<td>Match Card Game</td>
<td></td>
<td>1</td>
<td>Occasional background context / Theoretical feedback throughout the game</td>
<td></td>
</tr>
<tr>
<td>9. Be a Reporter</td>
<td>Simulation</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9. News Literacy Competences

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethics</td>
<td>History</td>
</tr>
<tr>
<td>Media Systems (Revenue models, media companies ...)</td>
<td>News Construction (angle, news values ...)</td>
</tr>
<tr>
<td>News Writing ($W$’s, Lead, Titles, Structure ...)</td>
<td>News gathering (sources, interviews ...)</td>
</tr>
<tr>
<td>Image (Photo-journalism or Video)</td>
<td>News production (editing, deadlines ...)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 10. Learning Principles

<table>
<thead>
<tr>
<th>1. start from the learner’s interests</th>
<th>2. connect comprehensio n and analysis</th>
<th>3. ask critical questions and listen well</th>
<th>4. focus on constructedness</th>
<th>5. use new ideas to directly support the practice of critical analysis and media composition</th>
<th>6. use collaborative multimedia composition</th>
<th>7. make connections between the classroom and the world</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. News Tutor</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>2. Elements of Verification</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3. Checkology</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5. Newseum News</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6. Be a Photographer</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7. Race for Your Rights</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Make a Match</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Be a Reporter</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
The summary scheme at table 9 also shows that the analyzed platforms covered a variety of competences, being the most commonly found ethics, news construction and news gathering. News construction is approached by the platforms both in terms of knowledge and skills, as sometimes it is approached in an analytical angle, sometimes it is approached in a practical angle in terms of developing production about the news.

Platforms often included Hobbs’ (2010b) learning principles, although two of them had no learning principles as described by Hobbs (see table 10). The learning principles most often included were the ones about making a connection between comprehension and analysis and about the importance constructedness. Principle number seven, about making a connection between the classroom and the world, also shows up frequently. However, it is important to clarify that the criteria to mark the presence of this principle was based on a broader interpretation of Hobbs (2010b) definition. In other others, what I often found was that the game made a connection between the player (not the classroom) and the world.

6.2. Results from the second stage of research

6.2.1. Prototype concept

Our prototype was designed with three main areas: news literacy games, news stories and interaction with the news stories. Initially a fourth area, where teachers could interact as a community exchanging lesson plans, was foreseen. However, due to time and technical constraints, that area was abandoned within the scope of this research.

Then, the news literacy game area started with only one game. Between the libraries’ pilot study and the final school experiment and intervention, and based on the results from the pilot study, two more games were added (Games 2 and 3). Also, at that time, some modifications to Game 1 were made.
The prototype incorporated many of the practices identified in the formative evaluation and it bridges both stages of the research, allowing testing those practices among children and addressing all research questions.

a) News literacy games

All games included in the prototype have text, audio and still images. Although the most prominent feature of the games is text, given the lack of support of a designer, all that is written has an audio option to help leveling out different readings skills that usually exist among children. Different voices were used, and very simple sound effects in the first game were also included to make the experience more appealing.

Initially, I shoot videos for Game 1, given that children expressed their strong preference for that format during the exploratory study. Nevertheless, when we integrated them in the platform, we found out that they resulted poorly, affecting the overall user experience. Consequently, and given technical and time limitations, I decided to remove all videos from the prototype, opting for a version with just still images, audio and text.

Game 1 – “Notícias no Zoo”

Based on the best practices observed during the formative evaluation, a first game incorporating an interactive narrative was created. The game called “Notícias no Zoo” (News at the Zoo) is a first person simulation focusing on how news is made and it was inspired by the game Be a Reporter (Digital Stemworks, 2013) as well as by a group dynamic I had tested several times, before the doctoral program, while working as a journalism trainer.

In this game, the player assumes the role of a journalist. The scene starts at a newsroom, where the editor sends the journalist to investigate the disappearance of a group of animals at the zoo. The player/journalist can, then, choose what equipment to take with him/her to the assignment – a pen, a notebook, a
toothbrush and/or a cup of tea. The editor comments on the player’s choices according to their pertinence.

The next scene takes place at the zoo with the zoo director. The reporter engages in a conversation with the zoo director and the player can choose from a set of given questions what to ask her. According to those choices, the game continues into different directions. Throughout the story, the player can interview other sources, such as a zookeeper or the police. The editor often comments on those choices with an educative intake.

The narration is completed with sounds of the animals and a few images of the scenes as seen in figures 9 and 10. The graphics are very simple, though. According to the choices the player makes throughout the game and the questions that the player decides to ask, the information gathered at the end of the game is different.

By the end of the game, the player comes back to the newsroom and he/she has the chance of choosing the news title for the news story. The options for the news title are different according to the path followed by the player during the game. Some titles are more complete than others, reflecting the set of information gathered by the player during the game.

Next, the editor provides feedback about the news title choice, commenting if bits of information were missing or if it was a good title, for example. There are five possible paths in the game. Working documents with the full script can be found in appendix 3.
Figure 8. First Screenshot of Game “News at the Zoo”, with the news editor sending the player on a field assignment to gather information for a news story.

Figure 9. Screenshot from Game “News at the Zoo”, where the player can choose what objects to take with him/her to the field.

Figure 10. Screenshot from game “News at the Zoo” where the player can choose what question to ask to the zookeeper.
Game 2 – “As Notícias são Construídas”

The pilot study at the libraries, combined with the formative evaluation recommendations and a creative intake of the researcher, resulted in the elaboration of two more games. “As notícias são construídas” (News Are Constructed) focuses on the general classical notion about news as a construction and the ideal of objectivity (Berger & Luckmann, 1966; Chomsky & Herman, 2006; Lippmann, 1997). This second game elaborates on the key message of media education, according to Masterman (1985, rpt. 2006).

In this game a very simple fictional story is told and then the player has the option of choosing the best pictures to illustrate that story. The story takes place in a forest, where a witch transforms two brothers in wooden statues. All pictures were taken from more or less the same spot and with the same landscape. They all have a wooden house in the back (from the witch, supposedly) and a wooden statue of two creatures in the front (from the brothers, supposedly). There are two sets of pictures and in each of them the player is urged to choose the best photo.

On the first set there are three pictures of the wooden statue to choose from: an extreme high-angle shot (picture taken from above), with an extreme low-angle shot (picture taken from under) and with a normal shot (picture taken at normal eye level).

On the second set of photos, there are four pictures to choose from: a close-up of the wooden faces, two medium shots of the statue with the wooden house in the back (on one the wooden house is slightly blurred and is only partially seen; on the other the wooden house is clearly seen) and one long shot of the same scenario.

Partially inspired by the app News Tutor (Krantz, 2012), this game went a step further, presenting options about image angles not only to explore image selecting and editing but also to visually explain the notion that news are constructed, that news stories have an angle and that journalists are people with a perspective on current events.
The editor comments the player choices explaining that news can be told with different angles; that journalists usually choose news angle to tell a news story; that journalists follow certain principles for telling the news stories the way they do and that some of those principles include telling the news with honesty and accuracy.

![Figure 11. Screenshot from the Game "News are Constructed" where the player has to choose the best picture to illustrate the story that has been narrated. All pictures were taken from the same place but illustrate different elements of the story.]

**Game 3 – Vamos Escrever uma Notícia**

The third game “Vamos Escrever uma Notícia” (Let’s Write a News Article) focuses, as the name suggests, on news writing and the six questions journalists have to answer – the five w’s and one h (who, what, where, when, why and how). The idea for this game was based on the lack of games which focused on news writing and on a conversation had about this dissertation, in 2015, with the Game Developer and Professor Warren Spector.

This game starts by asking the player to think about his/her favorite story and then it invites the player to answer some questions about that story. In short: who did what in that story, when, where, why and how? In the next screen all the answers appear combined in a single text and the player is invited to edit it, looking for any imprecision. The user should also add a title. Then, the news story appears in
a box which looks like a newspaper page. Finally, the last screen recaps the main rules of news article and news title writing.

To be accurate, “Let’s Write a News Article” may not be considered exactly a game, because it lacks fundamental game elements. For example, it fails to provide points or count time. However it was labeled as such in the prototype to keep it simple. It follows Hobbs’ (2010b) principle of starting from the learner interest.

![Figure 12. Screenshot from Game “Let’s Write a News Article” where the player has to fill in the answers to the six basic journalism questions.](image)

**b) News stories**

The platform also has a section with news stories selected and written for children. This section was totally updated before each workshop, according to current events happening at that time.

For example, for the workshops taking place in November 2017 there was a story about what is artificial intelligence, based on an interview with robots held on the web summit which took place, in Lisbon, during the same week. Another article explains why we have to change time in our clocks twice a year, given that on the following weekend our clocks should go back one hour.

During the workshops held in February 2018 new news stories were uploaded. For example, one was about the Chinese New Year; another one was about shops with no employers, based on an Amazon’s initiative, which was launched at that time. There was also a story about Tagus river pollution levels which
were alarming at that time. A showcase of some of the published news stories can be found in appendix 4.

The selection of news stories was based on a mixture of common news criteria and a perspective about what stories interest children the most, based on what other news websites for children were covering at those times too as well as the topics suggested by children surveyed by Alon-Tirosh and Lemish (2014). Also, all stories were written with short sentences, easy and repetitive vocabulary, using just one paragraph with a maximum of five sentences, following the lowest reading levels characteristics for the youngest members of our sample (Fountas & Pinnell, 1996).

c) Interaction with the news story

Finally, in a third area of the platform section, users can drag and drop news titles of that day/week to a news cover page, composing their own news cover according to their own news criteria. They can elaborate a news cover based on their own interests, following one of least used Hobbs (2010b) learning principle.

![Figure 13. Screenshot where the user can drag and drop current news titles to a news cover following his/hers own news criteria](image)
6.2.2. Libraries’ pilot study’s results

The goal of this pilot study was to test the prototype and the questionnaire to be used later on in the school experiment and intervention study. It focuses on the research questions about children’s perspective on digital platforms to teach them about the news, namely (RQ 1.2.) how do children engage with those technological features (gaming and storytelling) while learning news literacy in a digital environment; (RQ 2.3.) how do children engage with the news literacy lessons included in those digital platforms; and (RQ 2.4.) what do children learn while using those platforms.

The pre-questionnaire showed that most children had an average to high level of news literacy. However, half of the children had an average to low level of current events’ knowledge. Children participating in the Orlando Ribeiro library workshop exhibited a higher level of news literacy. As for news socialization, about half of them used to see their parents watch the news. However, most of them did not usually discuss the news with their parents. Only one child had participated in an activity related with journalism before.

Children participating at the Marvila library workshop took the extra step of preparing in advance the necessary arrangements to be at the workshop as they showed up alone with the consent forms already signed by their guardians; while, at Orlando Ribeiro’s workshop, children were taken by their parents. Also, most children in the Marvila group came from families whose parents had not attended University. At Orlando Ribeiro workshop, one child seemed to have been ‘dragged’ by his mother who was at his side most of the time. Although this boy seemed to be engaged with the questionnaire and game like most of the others, his mother often insisted for him to answer questions and fill in the form.

As children played the game, they consistently showed to be interested in solving the mystery of the animals’ disappearance. Children often asked help with

---

8 This section reproduces *ipsis verbis* parts of a published paper which summarizes the results of this pilot study (Campos & Sardo, 2018).
reading and spelling although the game had voice-over and children could hear all
the text. Several children, especially the ones who were still learning how to read,
seemed eager to read by themselves. Two complained the voice-over read too fast,
although they had complete control when to pass to the next screen. Overall,
children seemed to be in no hurry and really engaged with the story too.

Most of them also asked to play again, especially the ones who were not able
to get to the best result on a first attempt. One of them asked if he could play other
games. But the facilitator explained that to play other games they would have to go
upstairs, where there were other computers. Most children stayed.

The boy with the mother by his side, sometimes seemed to be bored and/or
frustrated. This child clicked fast in all the game options. Even so, in a scale from one
(strong dislike) to five (strong like) they all answered five as to liking the game.

Another child was so engaged with the game that at the end of the workshop
she said that she wished she could build her own newspaper at home about her
family. However she then said that she couldn’t do so because she did not had a
printer at home. Therefore, strategies to build a wall newspaper, written and
designed by hand, were given. Another child also showed interest in the idea of a
wall newspaper, saying that she was also going to try it.

Furthermore, I observed that children participating in the second workshop
seemed even more engaged in general, not only with the game in particular, but also
with the workshop in general. This was the group coming from a more challenging
socio-economic background, who showed up without their parents. These children
participated more in the workshop, asking more questions to the moderator not only
about the game, but also about journalism in general. They weren’t as orderly as the
first group but they discussed much more. Often on their own initiative, they
commented current events in relation to the concepts presented in the
questionnaire and the game, although their prior knowledge about current events
was scored lower than the first group.

Answering the RQ 1.2. and 2.2, results suggest that children were very
engaged with the game.
Table 11 Game 1 End Result*News Literacy Crosstabulation, using a scale from 1 (lowest) to 5 (highest), (N=8).

<table>
<thead>
<tr>
<th>Prior News Literacy</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game 1 End Result</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

As for RQ 2.3., results are not as conclusive. On one side, pre and post test show no improvement. On the other side, if we compare pre-test with game result we may consider that some children made some progress (table 11).

Naturally, a sample size of eight is not enough to establish quantitative findings, but it provides some clues in terms of learning results and helped improving the questionnaire too. Of the four children who finished with the two best endings, three of them had scored three out of five in the preliminary questionnaire that measured their news literacy level. These finding suggests that there was a positive evolution in their news literacy acquisition. Then, the only child who ended with the worst result was the same who did not show a high level of engagement, even though his prior news literacy level was high (4/5).

Then, although, at the beginning, there was a difference between the two groups in terms of news literacy level and current news events’ knowledge, no substantial difference regarding the game scoring was found at the end. This result suggests that the ones who knew less at the beginning learned more than the ones who already knew more at the beginning.

Most children showed some difficulty enumerating three news literacy lessons, when asked to do so. But some did. One child said that she had learned that the person in charge of choosing the news is the editor and not the journalist, while the role of the journalist is to find facts and write the story. The results suggest that Game 1 may have a positive learning outcome in terms of news literacy education, although the extent of those learning outcomes seems to not be sufficiently clear yet.
To partially answer the main RQ about how can digital platforms that teach about the news be improved, children were also asked what they did and did not like in the game and I also looked for comments about the best practices identified during the first stage of the study.

Most children commented on storytelling elements, with two of them saying that solving the mystery was what they liked the most. Most of them were very engaged with the first person simulation too. Two children complemented the technological features: they said they liked to hear the animals’ sounds and to see their images. When asked what they did not like, one child said that the reading was too fast; two children said the “answers/questions”. It is not clear, though, if they were referring to the questions in the game or the questions from the survey. In short, results suggest that children appreciate some of the identified best practices.
Considerations for Improvement

One of the goals of this pilot study was to do a preliminary test with a shorter sample in order to fine-tune the prototype and the questionnaire before implementing the final study with a larger sample. Given that aim, I include here a brief discussion about the considerations for improvement, especially on the limited results about the learning outcomes.

The limited results about learning outcomes may be analyzed under two lenses. First, at the research methods level, perhaps the questionnaire still lacked some fine-tuning in order to better test the learning outcomes. Given some of the children’s comments, I considered that the questionnaire was too long. Therefore, in the next study, I reduced the number of questions. Also, instead of using the same questions before and after, I considered that perhaps the after questions could be tailored to the exact lessons being explored in the game. It was unclear at this moment if the limited results were just due to the small sample size.

Second, at the game design level, I identified some improvements which could be made in order to make learning outcomes more robust. For example, to improve learning outcomes I decided to include more strategies to recap what is being taught throughout the game based on the importance of repetition in educative technological tools (Weibell, 2011). I also decided to increase the use of the editor’s feedback to recap key points. Therefore a new slide recapping those key points was introduced in the first game.

Finally, I considered that increasing the number of games could also help: the focus would not only be the story, but the repeating lesson too. That is why we incorporated two new games in the prototype by the end of this study, as already described in the previous section.
6.2.3. School experiment and intervention’s results

Having improved the prototype and refined the questionnaire, based on the results from the libraries’ pilot study, a new study with 50 participants was held at Colégio da Bafureira, in the outskirts of Lisbon, Portugal. Following the mixed methodology laid out in section 5.4.3., this final study examined children’s engagement with formats (RQ 1.2.) and competences (RQ 2.3.) proposed by digital platforms to teach them about the news. This final study also analyzed children’s learning outcomes (RQ 2.4.) while using the prototype, which implemented the findings from the formative evaluation.

a) Participants characterization

At the beginning of the workshop, participants presented a medium level of current events knowledge, a high level of news socialization, a high level of Internet consumption, and a medium level of news literacy as it is detailed next.

i) Current events knowledge

Most participants knew the answer to the question about the wildfires, with 34 (n=50) answering correctly. About half of the participants knew what the Portuguese Prime Minister’s name was, with 26 out of 50 answering correctly. Only a third of the children were acquainted with the question about the school ranking system, with 17 (n=50) giving the right answer. Older children seemed to be more informed about who the Prime Minister was, but not significantly more about the exams or the wildfires, as the results organized in crosstabs 12 to 14 show. Some children answered that they did not know the answer – that may have happened because the facilitator specifically said at the beginning that it would be better to answer “unknown” instead of randomly selecting an answer, whenever they would not know the answer.
Table 12. Age*Who is António Costa Crosstabulation

<table>
<thead>
<tr>
<th>Age</th>
<th>Prime Minister</th>
<th>UN Ambassador</th>
<th>President</th>
<th>I do not know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>14</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>1</td>
<td>6</td>
<td>17</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 13. Age* This Summers there were some big and tragic wildfires. Where? Crosstabulation

<table>
<thead>
<tr>
<th>Age</th>
<th>Center of the Country</th>
<th>Madera Island</th>
<th>I do not know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>0</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>1</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>15</td>
<td>0</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>3</td>
<td>13</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 14. Age* Last week the school rankings were published. Which one is correct? Crosstabulation

<table>
<thead>
<tr>
<th>Age</th>
<th>The rankings are based on 1 cycle exams</th>
<th>The rankings are based on 9 and 12 grade exams</th>
<th>I do not know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>9</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>1</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>17</td>
<td>28</td>
<td>50</td>
</tr>
</tbody>
</table>

For further data analysis purposes, answers to questions about current events knowledge were then recoded into right (1 point) or wrong/unknown (0 points).
A Pearson product-moment correlation coefficient was computed to assess the relationship between the three questions and demographics. There was a positive correlation between all three questions ranging from $p=0.007$, $n=50$ to $p=0.04$, $n=50$. The strength of that relationship was weak to moderate, ranging from $r=.292$ to $r=.378$. A scatterplot summarizes the results (table 15) Overall, there was a moderate, positive correlation between the three questions elaborated to assess current events knowledge.

Table 15. Current Events Knowledge Correlations

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Grade</th>
<th>Gender</th>
<th>Who is António Costa?</th>
<th>This Summer there were some big and tragic wildfires. Where?</th>
<th>Last week the school rankings were published. Which one is correct?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.768**</td>
<td>.180</td>
<td>-.175</td>
<td>-.283*</td>
<td>.035</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.210</td>
<td>.223</td>
<td>.047</td>
<td>.811</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Grade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.768**</td>
<td>1</td>
<td>.188</td>
<td>-.176</td>
<td>-.304*</td>
<td>.044</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.191</td>
<td>.223</td>
<td>.032</td>
<td>.761</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.180</td>
<td>.188</td>
<td>1</td>
<td>.159</td>
<td>.252</td>
<td>.110</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.210</td>
<td>.191</td>
<td>.270</td>
<td>.077</td>
<td>.448</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Who is António Costa?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-.175</td>
<td>-.176</td>
<td>.159</td>
<td>1</td>
<td>.378**</td>
<td>.292*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.223</td>
<td>.223</td>
<td>.270</td>
<td>.007</td>
<td>.040</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>This Summer there were some big and tragic wildfires. Where?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-.283*</td>
<td>-.304*</td>
<td>.252</td>
<td>.378**</td>
<td>1</td>
<td>.330*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.047</td>
<td>.032</td>
<td>.077</td>
<td>.007</td>
<td>.019</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Last week the school rankings were published. Which one is correct?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.035</td>
<td>.044</td>
<td>.110</td>
<td>.292*</td>
<td>.330*</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.811</td>
<td>.761</td>
<td>.448</td>
<td>.040</td>
<td>.019</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>
Reliability testing with cronbach’s alpha for the three questions was below acceptable $\alpha=0.592$. Nevertheless, I opted for grouping them as a single variable given the coherent logic behind each question, their significant correlation, the fact that they were adapted from a tested construct (Maksl et al., 2015), because there was qualitative data to complement it and because this variable would show a cumulative scoring in a current events knowledge variable. Furthermore, cronbach alpha may have been poor because only three items were considered.

The variable current events knowledge presents a normal distribution, with a mean value of 1.51 and a median value of 2 in a scale from 0 to 3, as shown in participants’ characterization table 20 at the end of this subsection. Overall, participants exhibited a median level of current events knowledge.

**ii) News Socialization**

Most participants answered yes to all three questions about news socialization, as shown in graph 4 to 6.
Crosstabs showed no difference per age or grade in participants’ answers to news socialization questions.

A Pearson product-moment correlation coefficient was computed to assess the relationship between the three questions about news socialization. There was a positive correlation between the first two questions, but not with the third one.
There was a strong correlation between seeing parents consuming news and talking with them about the news ($r=.483$, $p=.000$, $n=50$). A scatterplot summarizes the results (table 16). Overall, there was a strong positive correlation between seeing the parents consuming the news and discussing the news with them.

Table 16. News Socialization Correlations

<table>
<thead>
<tr>
<th></th>
<th>Costumas ver os teus pais a verem, ouvirem ou lerem as notícias?</th>
<th>Costumas falar com os teus pais sobre as notícias?</th>
<th>Costumas ouvir os teus pais a falarem sobre as notícias?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Idade</strong></td>
<td>Pearson Correlation</td>
<td>.156</td>
<td>-.093</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.281</td>
<td>.519</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Ano de escolaridade</strong></td>
<td>Pearson Correlation</td>
<td>-.087</td>
<td>-.342*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.550</td>
<td>.015</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Género</strong></td>
<td>Pearson Correlation</td>
<td>.201</td>
<td>-.112</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.162</td>
<td>.440</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Costumas ver os teus pais a verem, ouvirem ou lerem as notícias?</strong></td>
<td>Pearson Correlation</td>
<td>1</td>
<td>.483**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.117</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Costumas falar com os teus pais sobre as notícias?</strong></td>
<td>Pearson Correlation</td>
<td>.483**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.162</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td><strong>Costumas ouvir os teus pais a falarem sobre as notícias?</strong></td>
<td>Pearson Correlation</td>
<td>.225</td>
<td>.201</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.117</td>
<td>.162</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Reliability testing with cronbach alpha for the three questions was below poor $\alpha=.585$. But it rose to a questionable level when the last question was omitted $\alpha=.660$. Given the coherent logic behind each question, their strong significant correlation, the fact that they were adapted from an already tested measure (Maksl et al., 2015), because there was qualitative data to complement it, I opted for grouping the first two questions into a single variable, leaving the third one out.
This variable news socialization presents a negatively skewed distribution, with a mean value of 1.62 and a mode and median value of 2 in a scale from 0 to 2 (n=50), as shown in table 20 at the end of this section. Overall, participants exhibited a high level of news socialization. In other words, most participants are used to see their parents consuming the news and they frequently discuss current events with them too.

### iii) Net and news consumption

Results for variable Internet use were negatively skewed, as shown in table 17. Almost all participants answered that they either use Internet everyday (frequency=23, n=50) or at least once a week (frequency=20, n=50). Only three participants out of 50 answered that they do not regularly use Internet.

However, a considerable number of participants (17, n=50) answered that they have never used the Internet as a news source, while almost a third have had that experience at least once (table 18)

<table>
<thead>
<tr>
<th>Table 17. Internet Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you usually use the Internet?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes, once or twice a month</td>
</tr>
<tr>
<td>Yes, at least once a week</td>
</tr>
<tr>
<td>Yes, everyday</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 18. Internet Use for News Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you ever use the Internet to watch, read or listen to the news?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
### Table 19. Internet Use; Internet Use for News Consumption and Participation in School Project about the News Basic Statistics

<table>
<thead>
<tr>
<th></th>
<th>Internet Use</th>
<th>Internet Use for News Consumption</th>
<th>Participation in School Project about the News</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.26</td>
<td>.66</td>
<td>.92</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>.853</td>
<td>.479</td>
<td>1.291</td>
</tr>
<tr>
<td>Skewness</td>
<td>-1.155</td>
<td>-.697</td>
<td>.925</td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>.337</td>
<td>.337</td>
<td>.337</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>.969</td>
<td>-1.580</td>
<td>-.994</td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>.662</td>
<td>.662</td>
<td>.662</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maximum</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

(n=50)

### iv) Participation in other news or media literacy initiatives

Participants were also asked if they had ever participated on a project about media or journalism at school, like creating a newspaper or a blog or going on a field trip to a newsroom or TV station, for example. To the ones who answered yes, there was the possibility of writing down what was that project about.

Most participants said that they have never been involved in a school project about journalism. Even the few participants who answered ‘yes’ to that question, they were not able to enunciate projects about journalism in particular. For example, one of the participants who answered yes, then explained that he had went to the TV Quiz Show “Preço Certo”, showing not only that he probably had never been on a school project about journalism, but also that he was not very aware of what journalism is, confusing it with entertainment. One said that he had gone to SIC TV Station with his father and that he watched journalists working. Another one said he had been to the zoo and made a report about that.

Curiously, one of the classes was involved in a school blog, according to the Pedagogical Director, and some of those students were even in charge of writing a news piece about the workshop for their blog. However, none of the students mentioned that at the time of the survey.
v) Prior news literacy level (NLPre)

Most participants were able to answer correctly to three or more questions about the news, from the news literacy pre-test, as shown in tables 22 to 26. When recoded to right/wrong answers, the mean value of correct answers was 2.48 and the mode value was 1, in a scale from -5 to 5 (table 21). The two most challenging questions for the participants – meaning the two questions which most of the student’s failed to answer correctly – were the questions about who decides what is shown on the newscast (table 23) and about the most sensationalist newspaper (table 25). Only half of the participants answered correctly to either those two questions. To the other three questions, about a third of the participants were able to answer correctly, as shown in tables 22, 24 and 26. Overall, the participants had a medium to high level of news literacy level at the beginning of the workshop.
### Table 21. News Literacy Pre-Test

<table>
<thead>
<tr>
<th></th>
<th>NLPre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.48</td>
</tr>
<tr>
<td>Median</td>
<td>2.00</td>
</tr>
<tr>
<td>Mode</td>
<td>1</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.832</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.361</td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>.337</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.117</td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>.662</td>
</tr>
<tr>
<td>Minimum</td>
<td>-3</td>
</tr>
<tr>
<td>Maximum</td>
<td>5</td>
</tr>
<tr>
<td>Sum</td>
<td>124</td>
</tr>
</tbody>
</table>

Total score ranging from -5 to 5 points. (n=50)

### Table 22. News Literacy Pre-Test First Question

<table>
<thead>
<tr>
<th>A commercial is different from a news piece because...</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is a made up story</td>
<td>2</td>
</tr>
<tr>
<td>It tries to sell a product</td>
<td>39</td>
</tr>
<tr>
<td>I do not know</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

### Table 23. News Literacy Pre-Test Second Question

<table>
<thead>
<tr>
<th>Who decides what stories are broadcasted in a newscast?</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>The journalist</td>
<td>21</td>
</tr>
<tr>
<td>The editor</td>
<td>27</td>
</tr>
<tr>
<td>I do not know</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 24. News Literacy Pre-Test Third Question

<table>
<thead>
<tr>
<th>It is often said that the news is not a reality mirror. What do you think that means?</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>The news written by a journalist may have some made up information.</td>
<td>4</td>
</tr>
<tr>
<td>The news written by a journalist is only one possible way of telling what happen. There may be other ways.</td>
<td>35</td>
</tr>
<tr>
<td>I do not know</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

Table 25. News Literacy Pre-Test Fourth Question

<table>
<thead>
<tr>
<th>Which of the following newspaper is considered more sensationalist?</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correio da Manhã</td>
<td>25</td>
</tr>
<tr>
<td>Público</td>
<td>9</td>
</tr>
<tr>
<td>Não sei</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

Table 26. News Literacy Pre-Test Fifth Question

<table>
<thead>
<tr>
<th>How does a journalist elaborate a news story?</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>He/she searches for information and makes interviews</td>
<td>39</td>
</tr>
<tr>
<td>He/she searches for information, copies from the books and makes interviews</td>
<td>5</td>
</tr>
<tr>
<td>I do not know</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

vi) Relationship between variables at the start of the workshop

There was not a significant correlation between age and prior news literacy level, according to computed correlations (r=0.06, p=0.648, n=50). Curiously, there was a significant relationship between grade and prior news literacy level but that relationship was weak (r=0.19, p=0.183, n=50). There was also a weakly significant relationship between internet use and prior news literacy (r=0.19, p=0.194, n=50). But there was no significance in the relationship between prior news literacy level and internet use for news consumption (r=-0.07, p=0.631, n=50), neither with news socialization (r=0.086, p=0.554,n=50).
There was, however, a moderate positive correlation between prior news literacy level and current events knowledge ($r=0.35$, $p=0.012$, $n=50$). Current events knowledge was also positively correlated with news socialization in moderation ($r=0.31$, $p=0.029$, $n=50$). On the other hand, news socialization was positively correlated in moderation with grade ($r=0.41$, $p=0.003$, $n=50$) and Internet use for news consumption ($r=0.46$, $p=0.001$, $n=50$). Table 27 summarizes those correlations.

Overall, the level of current events knowledge seems to be a more important element affecting the level of news literacy than age of participants. Additionally, news socialization seems to increase as participants get older and, not surprisingly, news socialization seems to be related with current events knowledge and Internet use for news consumption.
Table 27. Participants Characterization Variables Correlations

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Grade</th>
<th>NLPre</th>
<th>Internet Use</th>
<th>Internet Use for News Consump.</th>
<th>News Socializ.</th>
<th>Current Events Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>1.00</td>
<td>.768**</td>
<td>.066</td>
<td>.118</td>
<td>.185</td>
<td>.173</td>
<td>.193</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.648</td>
<td>.415</td>
<td>.199</td>
<td>.231</td>
<td>.213</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.768**</td>
<td>1.00</td>
<td>.191</td>
<td>.110</td>
<td>.236</td>
<td>.409**</td>
<td>.184</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.183</td>
<td>.448</td>
<td>.098</td>
<td>.003</td>
<td>.200</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>NLPre</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.066</td>
<td>.191</td>
<td>1.00</td>
<td>.187</td>
<td>-.070</td>
<td>.086</td>
<td>.354*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.648</td>
<td>.183</td>
<td>.194</td>
<td>.631</td>
<td>.554</td>
<td>.012</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Internet Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.118</td>
<td>.110</td>
<td>.187</td>
<td>1.00</td>
<td>-.071</td>
<td>.111</td>
<td>-.047</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.415</td>
<td>.448</td>
<td>.194</td>
<td>.624</td>
<td>.444</td>
<td>.747</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Internet Use for News Consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.185</td>
<td>.236</td>
<td>-.070</td>
<td>.071</td>
<td>1.00</td>
<td>.459**</td>
<td>.049</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.199</td>
<td>.098</td>
<td>.631</td>
<td>.624</td>
<td>.001</td>
<td>.737</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>News Socialization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.173</td>
<td>.409**</td>
<td>.086</td>
<td>.111</td>
<td>.459**</td>
<td>1.00</td>
<td>.309*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.231</td>
<td>.003</td>
<td>.554</td>
<td>.444</td>
<td>.001</td>
<td>.029</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Current Events Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.193</td>
<td>.184</td>
<td>.354*</td>
<td>-.047</td>
<td>.049</td>
<td>.309*</td>
<td>1.00</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.180</td>
<td>.200</td>
<td>.012</td>
<td>.747</td>
<td>.737</td>
<td>.029</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

vii) What did participants thought news was at the start of the workshop?

At the beginning of the workshop, participants were asked about what they thought a news story was. Answers were written in a flipchart. Quite often, children gave three kinds of definitions: (1) news as something which has occurred; (2) news
as something defined by its gatekeeper; (3) news as something defined by its content (weather, tragedies, and so on).

The most common answers which were repeated across all grades included:

- “good things and bad things that happen” / “what happens” / “what has happened”;
- “what they [journalists] say”;
- “the weather”, “tragedies”;

When asked how should a news website for children be, children’s answers very often pointed to topics to be covered, such as: “warnings”, “news”, “events which cause fear”, “special events”, “events that happened”, “things which we like”, “weather”, “people’s jobs”, and “texts about what they are talking on the news”.

b) Engagement with the prototype

i) Pairing up and chatting about the game and the news

Most children played the three games by the order they appeared on the screen, but a few of them explored the games in a different sequence.

The vast majority of the children seemed very engaged with the game. Their heads were facing the screens most of the time and even when their heads were not facing the computer, they were often chatting with their peers about the game or the news. Rarely have I found a child who was truly distracted from the topic of the news.

Also, some children spontaneously paired up and played together in a way. Each child had his/her own computer, but before clicking in a new option some children waited for their buddy and they would often make the choices together, discussing out loud what they should do. Even when they were not ‘playing together’ they were very helpful to their peers, answering their occasional doubts.
Children who ended more quickly often asked if they could play again or if they could play the next game.

However, in two of the three groups there were one to two students who were clearly not very engaged. One of them said he did not want to play at all. When I answered that he did not have to play, he did not. But, suddenly, when most of his peers were about to finish, he decided he did want to play and requested help with the reading.

**ii) Requesting help**

While children were answering the questionnaire, they sometimes required help. But they requested less assistance when they were playing. I, as the facilitator, and their teacher were often walking around helping them. Sometimes they needed help with some word they still did not know the meaning, like “apelativo” (appealing).

Often they just wanted some reassurance they were doing the right thing. Most of them called me when they were playing “Vamos Escrever uma Notícia” (Let’s Write a News Article). This game requested participants to think of their favorite story in order to write a news article about it. Most children were excited to tell me what their favorite story was. Some children needed reassurance that they could use a certain story for that specific exercise. A few children would request my help saying that they did not have any favorite story and together (with open questions) we would try to think of a story of their liking in order for them to proceed.

In this game, children had the chance to correct grammar and spelling of their news story before the system filed it in a news page. I noticed that some children spotted the errors, but some did not even try to correct them. Only a few children asked help to verify if everything was right before submitting the story for the news page.

The game in which they required less assistance was the first one, the simulation about the stolen animals at the zoo. The game they required more
assistance was the last one, about elaborating a news story about their favorite book. Their biggest issue there was that they often had more than one favorite book and they did not know which one to choose. Sometimes they wanted to know if they could choose a film instead, which I accepted, as the purpose was to write a news story about something of their own interest (regardless if it was a book or a film).

Indeed, the audio feature was not working most of the time due to technical difficulties. However, I decided to proceed as all three teachers reassured me their students were well above reading levels for their grades and that they were all (including the second graders) able to read fluently on their own.

Sometimes children also required assistance with technical details like having unwittingly minimized one of the windows where they were working on. On a few occasions I heard them asking their peers where a certain letter of the alphabet was on the keyboard. But overall they were technologically apt for the tasks required.

iii) *Children’s views about gaming and storytelling formats*

Another dimension this study proposed to examine was the formats, like specific storytelling and gaming features, used in digital platforms to teach news literacy and how children reacted to those. To examine that, children were asked to classify in a five point likert scale how much they liked or disliked features like simulation; editor’s feedback; option of asking questions; use of true stories; option of composing a news cover; option of writing a news article; feature of selecting pictures; and recap at the end of each game. In general, and with very little nuances, most answers were negatively skewed, as graphs 7 to 13 show. The engagement with the editor’s feedback was the feature that fewer children said they liked very much.
Graph 6. Children’s engagement of simulation format (n=50)

Graph 7. Children’s engagement with editor’s feedback (n=50)

Graph 8. Children’s engagement of the option to asking questions (n=50)

Graph 9. Children’s engagement with news cover production (n=50)

Graph 10. Children’s engagement with image selection (n=50)

Graph 11. Children’s engagement with news writing (n=50)
Children were also asked if they were given the chance to play again this game at another time if they would do so. The vast majority answered yes (34 out of 50). Some were not sure, and answered “maybe” (14 out of 50). Only two children said no (n=50).

Children were also asked about what they would do differently. The vast majority said “nothing” but a few of them offered some suggestions, as it follows:

- “add more questions”
- “not repeating the same line as much”
- “having control of the character”
- “I would choose other images” / “I would change the animals”

Then, at the plenary session at the end of the workshop, children were again asked as a whole group if they had enjoyed the game and what they had liked and disliked the most. On that occasion, children expressed opposing views. For example, some said that what they liked the most was the first game “Reporter at the Zoo”. Others said that game was the one they disliked the most. Similarly some said that what they liked the most was the chance of writing a news story. Others said that writing a news story was what they disliked the most.
c) Learning outcomes

i) What did they learned?

Children were asked about what they had learned twice – once during the post questionnaire and another one at the final plenary. Some of them had some difficulties mentioning three lessons on their own, while filling in the questionnaire. But most were able to enunciate at least one aspect they had learned, while filling in the questionnaire.

The most common answers had a general focus. A little more than twenty children answered something like: “how to make news”, “how to make interviews”, “how to be a journalist”, “how to write a news story”, or “how to make a news cover”.

However, some children mentioned very concrete lessons which were stated at the recap slides within the games like: “the editor is the one choosing the news pieces”; “to make a news story we always have to ask six questions”; “a journalist has to follow certain rules”; “a journalist needs to make interviews and tell things right and write well”; “journalists have to tell true things, they have rules and they cannot copy other people”.

Then, a few children focused on the importance of news or journalism – “I learned that news are important”; “I learned that journalists are important”.

Also, eight children focused on the fun factor, writing things like “monkeys were nice and fun”, “I played, explored and I loved it”.

Additionally, four of them either answered they did not know what they had learned. One said he learnt nothing. Another said she learned that she wants to be a journalist when she grows up.

When gathered in a big group in front of the flipcharts and encouraged by the facilitator to name again some of the things they had learned, they were directed to enunciate more concrete learning outcomes. It looked much easier for them to summarize most of the lessons as a group, often elaborating from other colleagues’
answers and nodding yes or no with their heads and often saying things like: “Oh, yes, I forget that one. I also learned that too”. Some of the lessons children were able to summarize as a group were:

- “how to select images”
- “that a newspaper brings new information”
- “that a news piece answers six questions” – many of them said this, but most of them were not able to recall the six questions on their own, but they were able to recall the six questions as a group – “Who? What? Where? When? How? Why?”
- “how news/features are made”
- “how to make a news title”

In short, most of them were able to recall the lessons about news gathering and production (reporting process, writing, and editing). However, not so many were able to mention lessons about news angles and the representation of reality.

Next, while I was reading the picture books, children often interrupted with questions, transforming the read aloud in an interactive experience where connections with topics of their own choice and from the games were made. One child mentioned that “truth” was very important for journalists. Then, suddenly, another child asked me if I liked Trump, while another commented he was a bad person.

Although the read aloud were introduced with no specific research goal in mind, they ended up working as catalyst for the learning process. Children seemed to be particularly interested in the story about Nellie Bly and the fact that women did not used to have the same rights and jobs as men. “That is not right”, several of them repeated across the three workshops.
ii) Testing for an Effect

After the workshop (PostNL)

News literacy level was quantitatively assessed again after children had played the games and explored the platform. The post test included different questions, based on the lessons included in the games. Also instead of multiple choices, a true/false kind of quiz was presented. Tables 28 to 32 show that usually two thirds of the participants were able to answer correctly to all questions, except the last one. To question number five a little over half of the participants gave the wrong answer or said that they did not know the answer.

Table 28. News Literacy Post Test First Question

*Help me correct these answers, signaling the ones which are right and wrong. If you are not sure, answer “I do not know”: The editor chooses the news that appears on the newspaper pages or on the newscast.*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>True (correct)</td>
<td>33</td>
</tr>
<tr>
<td>False</td>
<td>8</td>
</tr>
<tr>
<td>I do not know</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 29. News Literacy Post Test Second Question

*Help me correct these answers, signaling the ones which are right and wrong. If you are not sure, answer “I do not know”: Journalists must tell facts with accuracy and precision.*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>True (correct)</td>
<td>35</td>
</tr>
<tr>
<td>False</td>
<td>6</td>
</tr>
<tr>
<td>I do not know</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 30. News Literacy Post Test Third Question

Help me correct these answers, signaling the ones which are right and wrong. If you are not sure, answer “I do not know”: The title of a news story does not have to be true if it is engaging.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>8</td>
</tr>
<tr>
<td>False (correct)</td>
<td>32</td>
</tr>
<tr>
<td>I do not know</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 31. News Literacy Post Test Fourth Question

Help me correct these answers, signaling the ones which are right and wrong. If you are not sure, answer “I do not know”: News stories can be told through different angles or perspectives.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>True (correct)</td>
<td>33</td>
</tr>
<tr>
<td>False</td>
<td>5</td>
</tr>
<tr>
<td>I do not know</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 32. News Literacy Post Test Fifth Question

Help me correct these answers, signaling the ones which are right and wrong. If you are not sure, answer “I do not know”: Some news stories only answer three questions: Who? Where? How?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>18</td>
</tr>
<tr>
<td>False (correct)</td>
<td>22</td>
</tr>
<tr>
<td>I do not know</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
</tr>
</tbody>
</table>

Next, answers were recoded into 1 point for a correct answer, 0 point for unknown answer and -1 to incorrect answer, and a new variable was created by making the sum of the five answers of each participant. This allowed creating a uniformed scale to be compared with the news literacy pre test.

When analyzing the results of news literacy post test as a whole, we find that the mean value was 2.20 (in a scale that ranged from -5 to 5); median and mode were both 3, as shown in table 33. Results presented a kurtosis of 1.65.

Thus, at the end of the game, children showed a good level of news literacy.
Table 33. News Literacy Post Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>NLP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.20</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td>Mode</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.990</td>
<td></td>
</tr>
<tr>
<td>Skewness</td>
<td>-1.130</td>
<td></td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>.337</td>
<td></td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.652</td>
<td></td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>.662</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>-4</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>110</td>
<td></td>
</tr>
</tbody>
</table>

Comparing overall news literacy level before and after

Pre and post news literacy tests scores were moderately and positively correlated \((r = 0.415, p < 0.003)\). However, computed paired t-tests showed no evidence of average difference between pre and post test scores \((t_{48} = .825, p < 0.413)\). On average, pre test scores were 0.245 points higher than post test scores (95% CI [-0.352, 0.841]). In short, paired t-tests analysis provides no evidence of an effect.

However, median and mode values are different before and after as table 34 shows. In a scale that ranged from -5 to 5, the news literacy pre test median value was 2, while the post test median value is one point higher \((n=50)\). Still in the same scale, pre test mode value is 1, while post test mode value is 3. In both tests there were students achieving the maximum result. But in the post test, while there were more students achieving median results of 2 and 3 points, there were also more students achieving negative results.

Summing up, while paired t-tests do not provide sufficient evidence of a clear effect of the platform in increasing news literacy among students, mode and median values variance suggest the possibility of an effect.
Table 34. News Literacy Pre and Post Test Statistics

<table>
<thead>
<tr>
<th></th>
<th>NLPre</th>
<th>NLPost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.48</td>
<td>2.20</td>
</tr>
<tr>
<td>Median</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Mode</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.832</td>
<td>1.990</td>
</tr>
<tr>
<td>Skewness</td>
<td>-.361</td>
<td>-1.130</td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>.337</td>
<td>.337</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.117</td>
<td>1.652</td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>.662</td>
<td>.662</td>
</tr>
<tr>
<td>Minimum</td>
<td>-3</td>
<td>-4</td>
</tr>
<tr>
<td>Maximum</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Sum</td>
<td>124</td>
<td>110</td>
</tr>
</tbody>
</table>

Graph 14 and 16. News Literacy Pre Test and Post Test

Summing up, participants coming from a richer cultural and economic background already possessed a medium to high level of news literacy level before the experiment and intervention. Also, findings suggest that children were engaged with the prototype in general throughout the workshop as well as with the specific formats tested. Then, while qualitative data suggests that there may be a positive impact in terms of learning process; quantitative data does not provide conclusive results about the effect the game may have in children’s news literacy level, although it provides a slight positive indication of that.
CHAPTER 7

7. Discussion

This research produced data that helps educators and designers creating and improving digital platforms to extend news literacy education among children. The broad question examined by this dissertation was about how digital platforms can improve news literacy education among children from elementary school aged levels. The goal was to assess the most common practices in terms of formats and competences taught to children in those platforms and to offer a practical contribution for improving news literacy education, by providing a list of the best practices. To do that, a prototype was built and tested through workshops with children.

This research had two main stages and integrated several studies. First, an exploratory study, made at the start of the doctoral program – which included interviews to a small group of children –, contributed to frame this research on the specific case of digital games and interactions while listening to children’s perspective in the research design phase. Then, the results of a formative evaluation of digital platforms, which educate children about the news, helped assessing what is currently being made, and what is lacking in such platforms that educate children about the news. Next, the creation of a prototype allowed to combine the best practices suggested by those two previous studies and test them as a whole among Portuguese children, who did not have any other platform about news education in their own language before. Finally, the core of this dissertation lays on the pilot and final testing of the prototype, which allowed further verification of the results obtained in the other stages while, again, giving voice to the main users: children. Indeed, listening to the users’ voice at various stages of the research contributed to a better understanding of the reception angle.
This dissertation contributes to the field of media literacy in several ways. This study highlights the best practices and lessons to teach news literacy online to children. The capacity for children in this age group to learn news literacy has been documented (Buckingham, 2003; Potter, 2011) and yet this population continues to be overlooked by the scholarly literature (Livingstone & Haddon, 2009). One of the possible reasons for that gap may be because young children are a difficult and vulnerable group to work with. However, even if most of the advices given to parents and educators would be to restrict the exposure to violent news content (Campos, 2016), the reality is that children continue to be exposed to the news and to discussions about current events (York & Scholl, 2015). This research’s data characterizing participants’ background also confirms that. Other studies have shown that increasing media literacy contributes to decrease fear of negative news content and to improve coping with negative news content (Comer et al., 2008). So, there are clear benefits in improving news literacy education among children.

Additionally, on the contrary to the idea that children find news boring, participants of this research showed to be interested in learning more about the news during all research stages. In the exploratory study, for example, one child mentioned how what he enjoyed the most in all analyzed platforms was to learn about how journalists work and write news. More, on the last study, one child defined news as “texts about what they are talking on the news”. This comment provides an indication that it is important for children to learn about the news and to get help in decoding the news for adults. That finding is in line with research supporting that children are not inherently disengaged from the news, rather they may be lacking age appropriate news stories (Alon-Tirosh & Lemish, 2014).

On the other hand, the fact that children often defined news by their content or that they consider the TV Show “Preço Certo” as a news program, indicates that children lack a proper understanding of what news is. If children indeed lack knowledge about the news – but they have interest in learning more about it, plus there are several advantages in doing so (see sections 1.6. and 3.5.) –, then we would deduce that it is necessary to increase and improve education about the news.
There seems to be an official intention in increasing news literacy education in a European (European Commission, 2017) and national level (Direcção Geral de Educação, 2018), especially linked with civics education. However, the fact is that school curricula still do not include much media education content overall, and even less in early years and elementary grades (Buescu et al., 2015). Also, teachers often lack the necessary preparation (Hobbs, 2009) and resources (Powers, 2010) to teach about the news.

Focusing this study on the analysis of digital media that educate about the news does not imply a belief that digital media could substitute the classroom or the teacher. On the contrary, results showed that the role of a facilitator contributes to consolidate the learning outcomes that start in a digital medium. However, given that children already spend so much time online (Mascheroni & Cuman, 2014), and that school curricula often overlooks news literacy as well as the lack of preparation of teachers in this regard, digital media can play an important role as a complement to other formal and informal educative initiatives.

On the other hand, the use of games to teach news literacy is still not deeply studied. Although there are some studies examining news literacy games for a college population (Aayeshah, 2012; Bogost et al., 2010; Cameron, 2004), very few examine news literacy games for children. Still, newsgames for children are out there for children to use. Therefore, this study also contributes to advance the knowledge about game design with an educative/social purpose.

As mentioned before, this research proposed to elaborate concrete guidelines to improve digital platforms to educate children about the news. Based on the results, section 7.1. discusses guidelines about what the best formats may be, and section 7.3. discusses guidelines about the competences. Additionally, this chapter includes some considerations about the effect that our prototype produced on the participants overall (section 7.2.) and about advantages in the use of this kind of platform (section 7.4.). Finally, this chapter ends by discussing this research’s limitations (7.5.) and suggesting ideas for future research (7.6.).
7.1. Best practices of gaming and storytelling formats in digital platforms that educate children about the news

News literacy education is an evolving field, which during the course of this doctoral research has grown immensely. The increased interest in news literacy education started a little before this doctoral research, with several international meetings taking place around the year of 2014 (UNESCO, 2014; Wallace, 2014). However, after events like Brexit in the United Kingdom and the 2016 North American presidential election, the general interest in news literacy education has grown even more. A proof of that is the 200% rise of Google searches using the term “news literacy” over the past five years (Google Trends, 2018, May).

The rapidly changing nature of the field has certainly presented an added challenge to this research also because several new educative platforms were created during the three years of doctoral research. Some of these platforms were included in the formative evaluation sample (News Literacy Project, 2016); some were not (DROG & Cambridge Social Decision-Making Lab, 2018; ISL Gaming, 2017; Warner, 2017), following the criteria explained in section 5.3.2.1.

Even so, the results from our first stage of research already showed that there was some variety of formats to teach news literacy: educative platforms such as MOOC’s, storytelling narratives / simulations and games. Also, those could be displayed in websites, apps or be only physically available at museums. The second stage of research contributed to test specific storytelling and gaming elements among children. A critical analysis of the results of both stages culminated in the elaboration of a list of best practices in terms of formats, as it is presented next.

Simulation

Results show that journalism simulations not only cover a broad spectrum of competences, as they have a potential to highly engage children. Digital simulations
could be seen as an extension of children’s pretend play into a screen, sharing many of the same characteristics and benefits as role-playing does in early childhood education (Gee, 2005).

Journalism simulations are possibly the most complex format examined by this research. They often incorporate all narrative elements (characters, plot, space, time). They may be more or less engaging not only according to visual and design elements used, but also according to the interest of the narrative. While I do not argue that children do not appreciate colorful fun looking images, results show that they may easily overcome the lack of those highly engaging design aspects, when presented with an engaging story. Due to technical constraints (the lack of a front end developer / designer) our prototype could not incorporate many visual elements. Even so, children were engaged with the “Reporter at the Zoo” simulation due to the narrative – many children complemented the mystery factor of the story and the use of animals. Children were also engaged with that simulation due to its interactive elements – many children complemented the feature of asking questions and one child even suggested that the game could be improved by allowing even more control of the character.

Another advantage of journalism digital simulations in news literacy education is the possibility of incorporating a wide variety of competences to teach, from practical skills like news gathering and production to more theoretical and abstract lessons such as ethical dilemmas.

The results which point to simulation as a best practice to teach about the news in a digital environment are in accordance with other studies about games to teach journalism to college students (Aayeshah, 2012; Cameron, 2004). On the other hand, the literature already pointed out to the many benefits of using role-playing in videogames for early childhood education in general too (Gee, 2005).

Gee (2005) also suggested that good educative games have to incorporate good principles of teaching as gamers learn while playing. Indeed, another advantage of digital simulations in news literacy education is the fact that of all analyzed platforms, this was the kind which incorporated more news literacy learning principles as defined by Hobbs (2010b) like, for example, the constructedness of
news. In simulations, children learn by doing. Also, simulations have the potential to bring children closer to the real news making process in a playful and safe way. The “I” is the center of a simulation and that may contribute for the gamer/learner to create a stronger connection with the lesson.

Recap

When assessing the various characteristics of digital platforms for news literacy education, in the first exploratory study, children often focused on the fun factor. One could argue that there may be a risk children end up focusing more on lateral elements like sounds, colors, characters, and less on the news literacy competences. On the other hand, that may not necessarily be a problem, as much of early childhood learning process can happen while children are playing (Vygotsky, 1999). In fact, I would risk saying that the ideal scenario would be finding the right equilibrium between play/fun and learning.

Results suggest that introducing more recap strategies within the games may have a positive effect on the learning outcomes, without decreasing the ‘fun factor’. From the pilot study to the final testing, the prototype was fine-tuned, and one of the improvements made was precisely increasing the number of slides which recapped the competences being taught. Results show that in the final testing children more often were able to remember at least one lesson they had learned while playing, like the six journalism questions, for example.

Recap strategies can assume different formats. One of the recap strategies identified by this research as a good strategy is the use of the editor character within a simulation to provide feedback, as it happens in the games Be a Reporter and Be a Photographer, displayed at the Newseum in Washington DC, as well as in the game “Reporter at the Zoo”, from our prototype. Also, having a screenshot highlighting the key points like the app News Tutor and all three games from our prototype is another recap method that children seemed to appreciate and seemed to increase their ability to remember the lesson being taught.
While our results suggest that repetition is important in fostering education about the news in digital platforms, it is important to mention that one child suggested us “not to repeat the same line as much”. Therefore, I would say that the creativity of those recap strategies is important in keeping children engaged with the game.

For example, using quizzes as a learning recap strategy could possibly be a feature to test. Such element would be useful not only as contributing to knowledge consolidation as well as testing or scoring method.

In any case, findings about recap techniques are in accordance with the literature. In fact, repetition to increase learning has been recognized as good learning principle since the time of Aristotle, passing by Pavlov, and more recently also in the field student-centered educative technologies (Weibell, 2011).

**Asking questions**

Another format that children seemed to have appreciated was the option to ask questions. In the last study, a few children even suggested increasing the amount of questions in the prototype, while one also proposed giving players more control of the character. One of the advantages of simulations is the possibility they offer for the player, assuming the role of a journalist, to ask questions to news sources. However, the formative evaluation’s results show that neither of the analyzed games yet include chatterbots, as suggested by Cameron (2004). While I do not know the reason why other news literacy educative platforms still do not include more features like chatterbots, I have to state that we were also not able to add chatterbots in our games due to technical and time limitations. I can only speculate that perhaps one of the reasons for chatterbots not being more widely used in this sort of platforms may be due to their technical complexity.

Nevertheless, as Cameron’s study already pointed out, our analysis of children’s engagement with our prototype also suggest that chatterbots could present an added benefit to this sort of digital simulation to teach about the news. Furthermore, asking questions to news sources through a chatterbot system, instead
of a system in which the player can only choose questions from a very limited set of options, resembles more the real journalism gathering process. Thus, the use of chatterbots would allow a more obvious implementation of Hobbs (2010b) learning principles of “starting from the learner’s interest” and “asking critical questions and listen well”.

**Interactivity**

Despite Hobbs (2010b) suggestion that news literacy interventions should start from the learner’s interest, that was the least present learning principle found during the formative evaluation. In fact, the evaluation study only identified that principle in one game, in *Be a Reporter*. Still, I had to stretch Hobbs’ definition of that principle. My criterion was based on the fact that, on this game, the player can choose where to go and with whom to talk with in order to collect information. However, for Hobbs (2010b), “starting from the learner’s interest” means allowing the learner to choose the competence and approach to be developed.

That principle is closer to what we did in Game 3 from our prototype, in which, we asked players to choose a story of their liking and write a news story based on that choice. We also tried to implement that principle in the prototype area where users can create their own news cover. Indeed, observation showed that children responded quite well to that possibility, confirming what Hobbs (2010b) had been advocating all along.

Therefore, one suggestion for future developers of platforms to educate children about the news would be to increase interactivity features which allow the player to define the content of the game.

**True stories and real life cases**

The formative evaluation of digital platforms which educate children about the news showed that platforms incorporate real elements in different degrees. The platform *What Would You Do*, for example, is entirely non fictional, using only real
cases and feedback from real people, such as journalists and scholars and the users themselves. Quizzes like *Race for Your Rights* or *Make a Match* as well as the game *Newseum News* combine real and fictional elements, either by making questions about real events or using real events for fictional situations like building the news cover. Then, the games *Be a Reporter*, *News Tutor* and *Elements of Verification* use live/real images either staged or from real events (it is not clear in neither) with a fictional story. Finally, the game *Be a Reporter* uses an entirely fictional narrative.

When asked if they would rather have a real or fictional story in a game like “Reporter at the Zoo” from our prototype, most children (40 out of 50) answered they would prefer a real story, confirming the impression which was put forward during the formative evaluation.

The use of real stories would also be in accordance with one of Hobb’s (2010b) learning principles about news literacy education: “make connections between the classroom [in this case, the player] and the world”. Also, given that this was expressed as being the children’s preference, game developers who would use real stories to build games about the news would also, in a way, be applying another of Hobbs’ (2010b) principles: “starting from the learner’s interest”.

Thus, one element to consider as a best practice when creating a platform to educate about news literacy would be the use of real stories.

**Live action videos**

The game *Be a Photographer* is unique in its way of simulating in real time how journalists have to decide where to look and what to focus during an ongoing event as well as how to frame it afterwards. We tried to apply part of that same principle in our prototype, although with limited technical characteristics (using still image instead of video), in the second game entitled “News are Constructed”.

Results about how children perceive this feature are not conclusive as some children appreciated our game format while others did not. Also, although our game applied the same theoretical lesson about different angles and frames for a news story, it did so using a different technological format which possibly does not have
the exact same potential to engage or to create the stress which journalists feel while reporting on a scene (still image instead of video). More research would be needed to verify if the use of live action videos is a best practice according to children, although our formative evaluation analysis would suggest it does have strong potential.

**Game elements**

We have said before that games may contain simulation, but they are not the same. A game to be considered as such should necessary have certain elements, like competition, goals, rules, scores, or others (Charsky, 2010). Given that rationale, our own study could be criticized by having a loose approach to the concept of game and by examining simulations that may not be considered as games if following a strict approach to the term. However, several authors have pointed out the blurring terrain between games and simulations (Cameron, 2004). It was not my purpose to be lost in a debate about terminology which is an ongoing debate among experts. Although this study had an overall focus on games, given children’s interest suggested on the first preliminary study, I felt it would be more useful to have a broader view on the various formats used to educate about the news. Also because, there were so few platforms doing so.

However, as I have analyzed game elements present in platforms that teach about the news, and given Char SKY’s (2010) suggestion that educative games should be using more entertainment game’s characteristics, one of the conclusions that strikes out from this study is precisely in accordance with Char SKY’s suggestion. Most analyzed platforms included some sort of gamification. For example, even the MOOC “Checkology” had a scoring element involved. However, most analyzed platforms failed in incorporating a vast array of game characteristics.

Thus, one recommendation for future game developers of news literacy games would be to increase the use of game elements.
Mystery and narrative

While children shown appreciation for the use of real stories, they also praised the “mystery” factor in the game “Report at the Zoo”. I would risk saying that what they truly appreciate was not only the “mystery” element as they called it, but also the compelling narrative/storytelling. The use of an engaging narrative to educate children about the news in digital platforms would be in accordance with one of Charsky (2010) suggestion to improve educative games in general. While recommending the incorporation of more entertainment game elements in educative games, Charsky also suggests the use of fantasy and hypothetical scenarios.

Doing ‘stuff’

Few of the analyzed platforms actually provided a chance to create a media message. Many simulated how media messages are built, but few actually gave the chance for the user to build his/hers own media message. However, our data suggest there is a potential in that sort of feature. Having incorporated that feature in the third game of our prototype “Let’s Write a News Article”, I had the chance of testing it with the group of 50 children and their appreciation for that game was surprisingly positive. This was the game children commented more out loud during the workshops and this was also the game that made children raise more their arms, requesting some sort of help. Often that request was just to share what the story they wanted to write about was, which suggests their high interest for the format. They also expressed their enjoyment in writing news stories, selecting images and selecting titles, showing their appreciation for the production competences of news literacy. This is in accordance with the mantra that children in this age group learn by doing. It is also in accordance with two more of Hobb’s (2010b) learning principles – “focus on constructedness” and “using collaborative multimedia composition to produce meaningful and authentic communication”.

211
Voice-over

Voice-over was found in several examined platforms. It was present in one of children’s favorite platform – News-o-Mattic. I decided to also use voice-over in our prototype to make sure all children were able to follow the game, regardless their reading level. Reading skills often vary among younger children who are still growing in confidence with their reading skills. However, during the workshops children often exhibited signs of wanting to read by themselves regardless the voice-over. Some complained that voice-over read to fast, although children always had total control when to pass to the next screen. In some of the workshops, there were technical problems which made audio not available. However, that constraint seemed to not have affected children’s engagement. While no children complained about the audio, results suggest that voice-over may not be as important as initially conjectured.

Virtual formats with real interaction

Some technology and game enthusiasts may consider that using media to teach about media may be the ultimate goal of media education, however I consider that, maybe, we should embrace some limitations in the use of media. Similarly to Thevenin’s (2018) observation that children were more engaged with a paper prototype of a mobile device app, than with the “real thing”; in this study, I also observed that children’s learning experience seemed to gain a deeper layer, when I acted as a facilitator at the end of the intervention. Indeed, children seemed to consolidate knowledge, gained while playing the games, when I gathered them as a big group to discuss what they had learned and what could be improved. For example, it was then that in one of the studies, children said they wanted to do a newspaper at home and that we discussed methods to do so, by talking about how a wall newspaper works.

Also, although the three read aloud were included in the intervention without a specific research goal in mind, I observed that the read aloud moment ended up acting as a great opportunity to establish comparisons with the game, to
increase children’s engagement with the intervention and to motivate them to ask more questions and make more connections with the topics being discussed.

Additionally, children’s spontaneous interaction with their peers also seemed to have contributed to increase their engagement and learning experience.

While studying the use of a game to teach about the media to children where real teachers could interact with children through the game, Kiili (2008) also noted that there was an advantage in using real feedback in a virtual educative experience. Furthermore the newsgame put forward by the Päivälehti Museum, in Helsinki, Finland, also proposes teachers to customize the game according to their educative goals. Thus I would argue that there may be an added benefit in mixing virtual and real formats in complement to one another. However, data from the formative evaluation shows that most platforms still do not make that connection with the educator’s dimension.

### 7.2. Has the experiment produced an overall effect on children?

Examined data, from the last two studies, searching for an overall effect of the use of the prototype, produced no entirely conclusive results. Even so, while paired t-tests provided no evidence of an effect in terms of overall news literacy increase after using our prototype in the last study, there is also no credible quantitative evidence of the contrary. As a matter of fact, mode and median comparison suggest a slight increase in news literacy after the experiment. Several reasons may explain the inconclusive results of the paired t-tests:

- Sample size of 50 is still too small for a quantitative definite conclusion.
- Pre and post tests were different. Pre tests had multiple choice kind of answer while post test had true vs. false kind of answer. Multiple choice may have demanded an increased attention from the participants. Also, the level of difficulty in both tests may not have been exactly the same: pre test were generalist questions while post test were more specific, drawn from the game.
- Children in this age group have a lower attention span and post test was done immediately after the workshop. By that time, participants may have already become tired with their attention span run down.

- The game was only played one time before children took the post-test, notwithstanding the importance of repetition in the learning process (Weibell, 2011). Had children been given the option of answering the post test after having played multiple times, and the results may have been different too.

- Although I tested my adaptation of the valid construct in a pilot study, I adapted it again and maybe it still needed further validation. News literacy measuring is an ongoing field of research.

Naturally, one could critique that the games from our prototype may have not produced an overall effect but, despite the unsatisfactory result with the paired t-tests, that seems to not have been the case. When examined together the quantitative data and the qualitative data, the suggestion that children did actually learn something with the platform and that they may have increased their news literacy levels becomes stronger. Two experiments (pilot and final testing) each providing weak support, when taken together as well as when taken together with the qualitative data, can provide an indication that there may be a strong support. A reasonable course of action could be to repeat the experiment with a larger sample, a longer questionnaire with a likert scale of five instead of three.

In any case, participant observation, data from the survey and interviews allow a critical analysis about the competences that children assimilate in this kind of digital platforms as the next section will further discuss.

### 7.3. Competences’ guideline for digital platforms that educate children about the news

Interventions in the classroom described in the literature and suggested by non fiction picture books for children, summarized at chapter three of this
dissertation, pointed out a vast array of news literacy competences which can be taught to children at elementary school levels. Those would include knowledge or key concepts – like journalism genres, ethics, or history of journalism, for example – and also skills – like news gathering, news writing, interviewing techniques, and so on.

The formative evaluation made at the first stage of this research also demonstrates that digital platforms to educate children about the news already incorporate many of those competences (table 9). Then, the prototype testing made at the second stage of the research added a new layer of verification of what competences children actually assimilate best when accessing digital platforms designed to teach them about the news.

Naturally, each child comes from a different social, cultural and economical background. Their families have different relationships with the news and children have different levels of exposure to news socialization and news consumption. Adding to children’s cognitive dispositions, cultural and educative history and context may influence how well children integrate media literacy lessons (Buckingham, 2009). Characterization of the participants of these research shows that interviewed children came mostly from a rich cultural and educational background.

Therefore, guidelines about competences presented in this section need to be interpreted with caution. While results of this research may not be representative of a wider population, they still serve as a solid ground to start a reflection on what news literacy competences can be taught to children at elementary levels.

Therefore, with due care, this section makes a critical analysis of the findings in order to put forward a set of news literacy competences which can be taught to children through digital platforms. That list includes topics such as news gathering, news writing, news production, image, news construction, history of journalism and ethics. Results show that there are also some neglected topics such as media effects. This section elaborates on that list of competences and ends with some considerations about the balance that should be achieved between practical and theoretical approaches to education about the news in a digital environment.
News gathering

Several of the games assessed at the formative evaluation covered topics like interviewing skills and gathering information. That was the case of *Elements of Verification* or *Be a Reporter* for example. In our workshops, children also showed to have indeed learned some aspects about news gathering, as one of the most common answers about what lessons they had learned was “how to make interviews”.

News writing

Most of the games did not include specific features to teach how to write news stories, although the literature suggested that this would be one of the lessons which would be accessible for children from seven to ten years old (Frey & Fisher, 2009; Hines, 2008; Lund & Sanderson, 1999; Robertson & Mahlin, 2005). Therefore, when upgrading our prototype we included one game with the specific goal to teach about news writing structure. Surprisingly, children seemed to enjoy this game as this was probably the one who generated more comments and verbal interactions. “How to write a news story” was also one of the most commonly mentioned lessons by children at the end of the workshop, with a few of them enumerating specific details like: a journalist needs to write the answer to six questions. Another aspect that was also easily apprehended by children was news title writing and how news titles need to be in accordance with the news piece.

The way how the third game from our prototype was built also contributed for children to learn how to edit and proof-read, another lesson often found in the literature about news literacy interventions in the classroom (Frey & Fisher, 2009; Hines, 2008; Lund & Sanderson, 1999; Robertson & Mahlin, 2005). Children often spotted errors, although they were not always able to correct them all, showing a symbiotic relationship between news literacy education and language literacy education.
**News production**

The game “Newseum News” explores the notion of deadline in a very creative way while using a touchscreen table to simulate the urgency of selecting news for the front cover in a collaborative game. Two of the three analyzed non fiction picture books also elaborated on how time matters for journalists (Gibbons, 1987; Leedy, 1990).

Our prototype also included a section where children could compose their own news cover by choosing the news titles of the week and some of them even elected that part as their favorite. So, news production – deadlines and news selection – is another news literacy competence which seems adequate to teach children from seven to ten years old.

**Image**

Several authors also suggested that image capture and photo editing were some of the skills that could be developed during a news literacy intervention in the classroom (Hines, 2008; Oldendorf & Calloway, 2008). Of all examined games, Be a Photographer is perhaps the one which goes into more depth in teaching how photojournalists work, focusing on where they have to look, when they need to click to take a picture and how they select pictures which best represent the news content, following ethical principles and news criteria. That game clearly shows how digital media can be used to teach children about most aspects of photojournalism.

The app News Tutor also offered many views on image selection and angles, covering not only ethical aspects, but also technical and legal (in one of the questions they cover how property should not be trespassed in order to make a photo, for example).

The second game of our prototype also explored how different camera angles affect how a certain issue is presented. “How to select images” was also one of the lessons mentioned by children when gathered in a big group at the end of each workshop.
Finally, I would suggest that as news literacy is closely linked with language literacy, lessons about the use of image in journalism can also be closely linked to visual education in general.

**News construction**

The idea that news is constructed is at the core of media literacy education (Masterman, 1985, rpt. 2006). This notion can be approached in a theoretical or in a practical manner, for example, by having children producing news with different angles or by explaining to children what are the news criteria that journalists follow, when deciding what is news.

Only five out of the nine examined platforms included some sort of teaching about news construction (news angles and/or news values). In our prototype, the message that news are a constructed product was present in all three games, and it was deepened in game number two – in which children had to select pictures for a story. Yet, most children did not enumerate this as a lesson they had learned while playing the games.

There may be several different reasons for news construction not having been one of the most understood lessons by children. Maybe that message was not clear enough in our prototype. Perhaps that message is yet to abstract for most children at this age, as they often have difficulty understanding more abstract concepts (Piaget, 1975). Or perhaps they may have gained some understanding about the notion of construction, but they were not able to put it into words given its complexity. Future research could further examine news construction competence education to children from seven to ten years old.

**History of journalism**

Another key point also covered in interventions in elementary grades classroom are related with the history of journalism. For example, Oldendorf and
Calloway (2008) explored the idea of free speech in a second grade classroom, touching in topics that went from the birth of a free press to the penny press.

However, during the formative evaluation stage, I could only find two games which presented ideas related with the history of journalism. Those were *What Would You Do* and *Make a Match*. The game *What Would You Do*, however, was mostly about ethical issues. In my analysis, I marked it as covering history of journalism because it used historical examples to teach about ethical issues. The game *Make a Match* is about news figures and historical news covers; however, it is a very simplistic quiz game of matching cards. Therefore, I could not find a game that deeply explored history of journalism.

Our prototype also did not cover this topic due to time constraints. However, during the workshops, children showed much appreciation for the picture book about Nellie Bly, asking many more questions about this read aloud than about the others. This story motivated children’s questions about how journalism was done in the past, how women did not had the same rights as men in the newsroom and in the world in general.

Results suggest that there is ground for improvement in including more history of journalism in digital platforms that teach about the news. For example, many of the games about misinformation, which were launched when this dissertation was approaching its finish (DROG & Cambridge Social Decision-Making Lab, 2018; ISL Gaming, 2017; Warner, 2017), could also make a connection between how fake news are produced now (which most of them do) and how propaganda was used in the past (which most of them apparently do not do).

**Ethics**

Ethics is the most covered topic of all analyzed platforms. Several different aspects of ethics and deontology are covered in various ways on the games. Some focus deontological aspects related with journalism profession (*Elements of Verification*); others focus ethical aspect of news gathering and news construction
(News Tutor, Be a Reporter, Be a Photographer); others focus ethical dimensions on news analysis by news consumers (Checkology).

Teachers have also been exploring issues about bias, objectivity and manipulation in the classroom, even before the debate about misinformation took off steam (Hines, 2008; Oldendorf & Calloway, 2008). However, given the ongoing debate about misinformation, this is likely to continue being one of the hottest topics in news literacy education in digital platforms, despite the fact that many platforms already thoroughly address this topic.

Children’s comments during the workshops also suggest that they have been paying attention to adult’s discussions and are curious to learn more about the importance of truth in the news.

**Media systems**

One of the topics suggested by Hobbs (2010b) to be included in news literacy interventions, and often neglected by school interventions, has to do with media systems – in particular, issues about revenue models, media companies, and so on. It is unclear how suitable this topic would be for children at elementary levels as no specific literature about interventions exploring this particular topic has been found so far. Our formative evaluation did, however, showed that at least two digital platforms are exploring this topic. But the platforms that did include the topic are the ones which target older children (Elements of Verification and Checkology). Thus, it remains unclear how this specific topic could be presented to young children and how children would relate to it. Nonetheless, there is no reason to believe that young children cannot be taught about media systems too, when lessons are adapted to their comprehension ability.

**Neglected competences**

Finally, I could not help but notice the absence of certain key topics from the analyzed digital platforms, namely media effects. Similarly to what has been
described in the literature about news literacy interventions in the classroom (Frey & Fisher, 2009; Hines, 2008; Oldendorf & Calloway, 2008), neither of the platforms which I examined during the formative evaluation stage seemed to include lessons about the effects media have on the audience. Nevertheless, scholars consider that raising the understanding of how the brain assimilates media messages is an important component of media literacy (Potter, 2011). Further studies could look into how that key topic can be taught to young children.

**Balance between theory and practice – bridging skills and knowledge**

Although there were some news literacy topics which were absent in the analyzed digital platforms, results show that the array of competences put forward by such platforms is quite complete and presents a balance between skills and knowledge.

Results from the workshops also suggest that children may apprehend practical skills more rapidly than theoretical knowledge, because participants recalled topics about news gathering and production more frequently than topics about news angles or about the representation of the reality, for instance.

Participants’ focus on more concrete dimensions, is not surprising as participants of this research are at the pick of the concrete operational stage as defined by Piaget (Piaget, 1975). According to the cognitive developmental theory, at this stage it is expected that children’s thinking gets more logical. Children between the ages of seven and eleven years old often struggle to understand abstract and hypothetical concepts.

Abstract thinking usually emerges after that, with tweens becoming more able to deepen their reasoning about moral, political, social, ethical and philosophical issues (Piaget, 1975). However, some participants also revealed to be curious about more abstract and theoretical issues, especially the ones related to hot topics which they were used to hear in adults’ conversations, like the importance of truth in the news. Conversation about importance of truth in the news and politics and the relationship between Trump and journalists arise in the third grade.
workshop, so they were not even the eldest participants. It is important, however, to bear in mind that most of the participants came from a privileged background. They may have been repeating ideas they heard at home. Even so, as most children this age, participants were also curious about the world around them and open to learn more about it, even when that included complex abstract topics.

Also, one of the most commonly found competence in the formative evaluation was ethics, which can be quite an abstract concept. And ethics was identified not only on the few analyzed platforms which targeted older children, but also on the ones which targeted younger children, like *News Tutor* or *Be a Reporter*.

Therefore, when approaching this list of news literacy competences to include in a digital platform for children, it is important to bear in mind that holistic approach to the notion of competence and the fine balance between theory and practice; skills and knowledge.

### 7.4. Advantages in the use of digital platforms to educate children about the news

In accordance with the literature, I also observed several advantages in children’s news literacy education in a digital environment.

During all workshops, children consistently showed a will to write and read well. Despite the fact that the voice-over feature was implemented with the intent to help children overcoming reading difficulties; children often showed they wanted to read on their own. Participants frequently asked the facilitator’s support to verify if they were reading correctly. Likewise, they often required the facilitator’s assistance in verifying their spelling, exhibiting a sense of pride for writing well. While describing news literacy interventions in the classroom several authors also mentioned that news literacy education contributed to improve children’s reading and writing skills (Hines, 2008; Lund & Sanderson, 1999; Robertson & Mahlin, 2005).
As indicated Lund and Sanderson (1999), the evidence found by this research also suggests that news literacy education in digital platforms contributes to develop digital and technological skills. Given the fact that the platforms and the prototype were themselves digital media, it is not surprising to find that their use also contributes to improve computer skills. Indeed, during the workshops it was evident that while children were interacting with our prototype, they were also training their hand coordination to use the computer mouse, they were also practicing keyboard typing and learning new keyboard commands while changing from the prototype window to the online survey window, for example.

Finally, another advantage observed in this study, and often reported in the literature, had to do with inquiry and critical thinking developing (Oldendorf & Calloway, 2008; Robertson & Mahlin, 2005). The discussions at the end of the workshops illustrate just that. When gathered in plenary, children often made connections with the game, journalism and the world around them. For example, in one of the workshops, when children were enumerating lessons learned, one child made the connection between the idea that “journalists have to tell the truth” and the ongoing debate about fake news and politics. Others followed the lead and also engaged in discussing the topic.

In this study, I did not specifically found evidence of the other two advantages often quoted in the literature – creating empathy and building up citizenship (Oldendorf & Calloway, 2008; Robertson & Mahlin, 2005). Nonetheless, there seems to be no reason to believe that a digital platform to educate about the news cannot contribute for the development of children as members of a global society too.

Summing up, findings suggest that digital platforms and interventions in the classroom to teach children about the news share many of the same characteristics in terms of competences and advantages. Therefore, given the already mentioned constraints to include more news literacy education in schools, digital platforms may indeed offer a strong complement to school approaches to education about the news, in terms of competences put forward.
7.5. Limitations

This research could be used as a starting point to elaborate a framework for the development of digital platforms that educate children about the news. However, like in any other study, this work also has its own limitations.

Few studies include the creation of prototypes in their research design. The reasons for that are many as pointed by Aayeshah (2012, 2015). First of all, it is time consuming. Second, few media science scholars have the necessary technological expertise to program and design prototypes. Third, hiring programmers and designers costs money. Fourth, projects involving other workers often fall off the control of the researcher. Still, this research was successful in overcoming most of those constraints. I was able to build the prototype in a timely and efficient manner and test it in two studies.

Nevertheless, the current study was limited by several technological problems. In some workshops, the audio was not working and children were not able to listen to the voice-over. Then, we lacked front-end expertise while developing the prototype and, for that reason, the prototype design is quite simple. That seemed to not have affected children’s engagement, but I can not be sure if children’s experience with the prototype could have been different if the design would have been more appealing. Next, data collection was also affected by technological problems as in one of the workshops screen capture was not working properly.

Other limitations that can be pointed out at the level of data collection are the lack of depth with the interview with the Newseum key informant, who was not able to answer most of my questions; and the absence of an interview with a representative of the platform Elements of Verification.

Also, another potential weakness in this research lays on the challenging dual role I had during the workshops as facilitator and observer. That double responsibility may have limited my ability to observe.
The data sample size of the last study may be pointed out as another limitation as a sample of 50 is not the ideal number for establishing quantitative findings. This research tried to overcome that limitation by triangulating the result of that study with the results from other studies. Yet, that may be one of the reasons why paired t-tests were inconclusive.

Finally, another limitation may be the fact that most participants’ knowledge about journalism was probably higher than the overall Portuguese population of the same age, given that they came from a privileged background. While they may not provide a good representation of the general population, they were in a position which may have been advantageous for this research, being able to comment and compare the platforms deeply.

7.6. Future research

This research raised up many questions in need of further investigation. Our results are promising and should be validated by a larger and more diverse sample size. Further work also needs to be done to further validate a news literacy measurement scale for children at elementary school level. Overlooked competences, such as media effects, may be explored in future studies on news literacy for children.

Finally, a recommendation for academics coming from countries and/or universities lacking an ethical review board would be to develop formal common guiding principles, adapted to the local reality, about research with vulnerable populations.
CONCLUSION

Regardless the vast body of literature in the field of news literacy, previous studies failed to examine digital platforms that propose to educate children about the news. This thesis contributes theoretically, methodologically and empirically to the disciplines of media literacy and game design for children, by providing concrete guidelines to improve children's education about the news in digital platforms.

Part of the richness of this exploratory approach lays in the multidisciplinary nature of the research at several levels. First, this study expanded the borders of knowledge by crossing theory from journalism studies, media literacy and game design.

Second, recognizing that all techniques have their own limitations, I assumed a pragmatic and mixed methods approach by triangulating data sources, and methods. The incorporation of several stages and studies allowed overcoming certain limitations during the research and to deepen the understanding of the problem being examined. Next, recognizing my own expertise limitation in the field of computer sciences, I also triangulated knowledge by establishing a partnership with another researcher with a programming background.

Third, this research also combined an action research and a participatory orientation. Under an action oriented approach, this research aimed at solving a problem by providing guidelines for effective practices. Indeed, a critical analysis of the findings of all four studies allowed me to produce a list of formats and competences to improve digital platforms that teach children about the news. Then, under a participatory oriented approach, this research involved participants at all stages and tried to bring a positive change into their lives, by creating a concrete tool, the prototype, and by holding workshops. A vulnerable population is rarely in a position of power and this research contributed to bridge the views of programmers, researchers, educators and children.
This study makes an important contribution to the growing body of literature about media literacy by examining an under researched group of people (children from seven to ten years old), in an under researched educational setting (news literacy in informal settings, in particular, digital platforms), and by advancing with guidelines for effective practices, while involving children at all stages of research.

This unique approach to the topic of research allowed considerable progress with regard to develop the understanding about news literacy education among young children in digital platforms. Here are seven major contributions put forward by this research.

Digital simulations provide a rich experience for children to learn about the news. Empirical findings from this research show that there is a vast array of technological formats which can be used to educate children about the news. However, children showed preference for simulation and other formats which allow them to create media and/or ask questions. Also, simulations integrated more learning principles than other simpler formats, like quizzes.

Hosting the right equilibrium between fun and learn in a digital platform to educate about the news is key for children’s engagement and success with the learning experience. One of the conclusions of this research is that the right amount of message recap contributes to consolidate the learning experience. But if too much is repeated, the platform becomes boring and may drive children away. The ‘right’ educative game would be the one in which children to not feel that it is an educative game. Educative games labeled as such seem to carry a boredom stigma for children. As one participant said they may not like the games that teach, but they do like to learn with the games. In a way, this idea is in accordance and expands Charsky’s (2010) advice to include more game elements in educative games.
Educate children about journalism using real stories. Probably the most common advices given to parents and children is to not expose young children to the news (Campos, 2016), because the cruel reality presents an added challenge than the frightening fiction (Buckingham, 2004). So, while teaching children about the news, fictional stories seem safer. Nevertheless, it is possible to teach children about the news using real stories. Probably that takes harder work, as certain precautions, in terms of content and language use, have to be assured. Even so, participants of this research expressed preference for the use of real stories to learn about the news, over fictional ones. The formative evaluation and our prototype also showed that it is possible to do that.

Young children may apprehend skills more rapidly, but they are also interested in discussing more complex abstract concepts, when learning about the news. The evidence from this research suggests that, although there is a vast set of competences being put forward by this kind of digital platforms, participants seemed to remember more easily practical competences like skills about news writing, than abstract concepts like knowledge about how the news is constructed. Nonetheless, children also showed interest in discussing other abstract concepts about ethics, like the importance of truth. Although children’s understanding of abstract concepts may still be limited at the targeted age, they seemed eager to learn and discuss abstract topics related with current events.

The human/real dimension should not be neglected when using digital platforms to educate children about the news. The prototype testing put in evidence that interaction in real space could contribute to consolidate and increase the learning process that started at the virtual space in, at least, two ways. First, children were able to name more lessons learned when rounded up in a big group with the facilitator. Second, children, who spontaneously paired up with their friends, seemed to be more engaged. They used the interaction with their peers to clarify doubts and confirm their choices, possibly increasing their intake from the game.
Thus, based on these observations, I would suggest that virtual environments to teach children about the news should be used in complement and not in substitution of other forms of learning. Digital platforms may be an important element to foster informal learning about the news, especially given the narrow attention usually given to this discipline in formal settings like the classroom. However, the role of educators, parents and peers, in formal and informal approaches, may probably be even more elevating for a child.

Digital platforms about the news should also start the educative process from the learner’s interest. Perhaps the most innovative contribution of this research was to find out that it is possible to fully apply one of the most important news literacy learning principles which is starting by the learner’s interest (Hobbs, 2010b). Although none of the evaluated platforms is actually fully implementing that principle, our research showed that it is possible to build a game in which children decide the topics they want to explore. In addition, findings confirm that participants appreciated having that option and engaged more with the lesson.

A question remains though. On one side findings suggest that children learn skills more rapidly than theoretical competences. On the other side children also showed interest for abstract ideas too. Have children learned skills more rapidly because they are naturally predisposed for that, because they are at a developmental stage in which the concrete is at the core? Or have children learned skills more rapidly because the game that taught them about journalism production was the one which started from their interest?

Finally, while results from this research cannot be generalized to the overall population, educators and game developers may use these guidelines as a basis for improving news literacy education among children.
REFERENCES


UNESCO. (1982). Grunwald Declaration on Media Education.


LIST OF TABLES

Table 1. News Literacy Key Concepts Knowledge for Seven to ten Year Old Children
Table 2. News Literacy Skills for Seven to ten Year Old Children
Table 3. Exploratory Study Platforms’ Identification Chart
Table 4. Formative evaluation’s sample description
Table 5. General Characteristics – Description
Table 6. What elements would children include in a digital journalism platform for children
Table 7. Storytelling Elements
Table 8. Gaming and Educational Interactivity
Table 9. News Literacy Competences
Table 10. Learning Principles
Table 11 Game 1 End Result*News Literacy Crosstabulation, using a scale from 1 (lowest) to 5 (highest), (N=8)
Table 12. Age*Who is António Costa Crosstabulation
Table 13. Age*This Summers there were some big and tragic wildfires. Where? Crosstabulation
Table 14. Age*Last week the school rankings were published. Which one is correct? Crosstabulation
Table 15. Current Events Knowledge Correlations
Table 16. News Socialization Correlations
Table 17. Internet Use
Table 18. Internet Use for News Consumption
Table 19. Internet Use; Internet Use for News Consumption and Participation in School Project about the News
Basic Statistics
Table 20. Participants Characterization Summary
Table 21. News Literacy Pre-Test
Table 22. News Literacy Pre-Test First Question
Table 23. News Literacy Pre-Test Second Question
Table 24. News Literacy Pre-Test Third Question
Table 25. News Literacy Pre-Test Fourth Question
Table 26. News Literacy Pre-Test Fifth Question
Table 27. Participants Characterization Variables Correlations
Table 28. News Literacy Post Test First Question
Table 29. News Literacy Post Test Second Question
Table 30. News Literacy Post Test Third Question
Table 31. News Literacy Post Test Fourth Question
Table 32. News Literacy Post Test Fifth Question
Table 33. News Literacy Post Test Statistics
Table 34. News Literacy Pre and Post Test Statistics
LIST OF FIGURES

Figure 1. Intersecting fields diagram from “News Literacy: Opportunities, Challenges and Next Steps” report (Wallace, 2014). Reproduced here with permission from the authors. ................................................................................................................................. 16
Figure 2. Research Design Diagram ................................................................................................................................. 99
Figure 3. Engineering Chart.................................................................................................................................................. 101
Figure 4. The Newseum News screen table game. .................................................................................................................... 154
Figure 5. Detail view of Be a Photographer game with the display of the three live action images. ......................................................... ................................................................................................................................. 157
Figure 6. Detail view of “Match the Cards”. .............................................................................................................................. 158
Figure 7. Detail view of Be a Reporter game where the editor assigns the job. .............................................................................. 160
Figure 8. First Screenshot of Game “News at the Zoo”, with the news editor sending the player on a field assignment to gather information for a news story..................................................................... 167
Figure 9. Screenshot from Game “News at the Zoo”, where the player can choose what objects to take with him/her to the field .............................................................................................................. 167
Figure 10. Screenshot from game “News at the Zoo” where the player can choose what question to ask to the zookeeper ................................................................................................................................. 167
Figure 11. Screenshot from the Game “News are Constructed” where the player has to choose the best picture to illustrate the story that has been narrated. All pictures were taken from the same place but illustrate different elements of the story. .................................................................................................................. 169
Figure 12. Screenshot from Game “Let’s Write a News Article” where the player has to fill in the answers to the six basic journalism questions. ............................................................................................................ 170
Figure 13. Screenshot where the user can drag and drop current news titles to a news cover following his/hers own news criteria ............................................................................................................................... 171
LIST OF GRAPHS

Graph 1. Children’s opinion about the platform’s navigation (n=5) .................... 140
Graph 2. Children’s opinion about the visual layout  (n=5)............................... 142
Graph 4. Do you usually see your parents watching, listening or reading the news?
(n=50) ................................................................................................................. 180
Graph 5. Do you usually talk with your parents about the news? (n=50)............. 181
Graph 6. Do you usually listen to your parents talking about the news? (n=50) ...... 181
Graph 7. Children’s engagement of simulation format (n=50) ............................... 193
Graph 8. Children’s engagement with editor’s feedback (n=50) ......................... 193
Graph 9. Children's engagement of the option to asking questions (n=50) ....... 193
Graph 10. Children’s engagement with news cover production (n=50) ............... 193
Graph 11. Children’s engagement with image selection (n=50) .......................... 193
Graph 12. Children’s engagement with news writing (n=50) ............................. 193
Graph 13. Children’s engagement with learning recap (n=50) ............................ 194
Graph 14. Children’s preference for real vs fiction stories in news literacy platforms
(n=50) ...................................................................................................................... 194
Graph 15 and 16. News Literacy Pre Test and Post Test ...................................... 200
Appendix I

Questionnaire and semi-open interview guide for exploratory study at St Julian School (June, 2015)

Thank you for accepting cooperating with me. I am a student like you. I am doing a PhD in Digital Media at the University of Texas at Austin Portugal Colab program. My research has to do with journalism and news literacy for children and young people from 6 to 12 years old. Firstly I will ask you some short and simple questions about your Internet usage habits and also about your parents in order to know your media background a little better. Then I will present to you a few digital projects that I am studying and I will ask you to try them so that you can give me your opinion on them.

There is no right or wrong answer in this test. You are not the one being evaluated here, the websites are, please help me doing that, being completely honest in your answers. Please speak freely and express all your thoughts about the questions being posed and the sites being presented. Something that may seem obvious for you, may be new to me.

*Obrigatório*

1. Name *
2. Age *
3. Grade *
4. Gender *
5. How often do you go to the internet? *
   - Daily
   - Twice a week Once
   - a week
   - Just on weekends
   - Twice a month
   - Once a month

6. How much time do you spend on the web each time you access it? *
   - less than 30 minutes
   - 1 hour
   - 2 hours
   - more than 3 hours

7. What are your favorite activities on the web? Where do you spend most time online?

8. Where do you usually access the internet? *
   - at home
   - at school
   - at the library or at an Internet centre out of school Other:
9. What devices do you have at home
   - PC on my bedroom
   - PC on a common space, like the living room
   - Tablet
   - My own mobile with Internet access
   - My parent’s mobile with Internet access
   - Other: _______________________________

10. When you access the Internet, are you usually alone or accompanied? *
    - alone
    - with company

11. If you answered with company, please say whom?

12. Have you ever used the Internet to look for the news by your own initiative? *
    - Yes
    - No, I never felt that need No,
    - I don’t like the news

13. If yes, how often have you done so?
    - once
    - a couple times several
    - times a month weekly
    - daily

14. Have you ever read the news in the Internet (including through email, social networks or mobile)?
    - yes
    - no

15. How do you usually access the news?

16. Are you involved in any journalistic activity at school? Check the answers which are correct for you.
    - I write for the school newspaper
    - I produce contents for the school TV or Radio
    - I produce contents for the school’s blog
    - I produce news contents for the class’ blog
    - I went on a school field visit to a newspaper, TV or radio station
    - I have studied journalism writing in English class (news, lead)
    - I have read a text from a newspaper in an English class

17. Do you think journalism and news production should be taught to young people of your age? Why? *

18. If you were given the chance to build an online project to deliver news to children and teach them about journalism, what features would you include in it?
19. With whom do you live? *

20. What's your father's occupation?

21. What's your mother occupation?

22. What's your parent's highest level of education achieved?

<table>
<thead>
<tr>
<th></th>
<th>less than high school</th>
<th>High school</th>
<th>BA</th>
<th>MA</th>
<th>PhD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. How often do your parent's access the Internet

<table>
<thead>
<tr>
<th></th>
<th>All the time</th>
<th>A few times a day</th>
<th>Once a day</th>
<th>A few times a week</th>
<th>A few times a month</th>
<th>Don't</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24. How would you classify your parents Internet use competence? *

<table>
<thead>
<tr>
<th></th>
<th>Don't use it</th>
<th>Insufficient</th>
<th>Sufficient</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25. How often do your parent's read the newspaper? *

<table>
<thead>
<tr>
<th></th>
<th>Every day</th>
<th>Once a week</th>
<th>Just occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. How often do your parent's watch the news on tv? *

<table>
<thead>
<tr>
<th></th>
<th>Every day</th>
<th>Once a week</th>
<th>Just occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

27. How often do your parent's listen to the news on the radio? *

<table>
<thead>
<tr>
<th></th>
<th>Every day</th>
<th>Once a week</th>
<th>Just occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28. How often do your parent's read, listen or watch the news online? *

<table>
<thead>
<tr>
<th></th>
<th>Every day</th>
<th>Once a week</th>
<th>Just occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
News for children website review

Imagine that you are looking for news to get informed about what is happening today in the world. You have access to a PC and an Ipad. But you have limited time for it - about 5 minutes to spend in each site/app. Someone suggests you should have a look on the following sites/apps:

- [www.bbc.co.uk/newround](http://www.bbc.co.uk/newround)
- [www.firstnews.co.uk/](http://www.firstnews.co.uk/)
- [www.dogonews.com/](http://www.dogonews.com/)
- News-o-mattic (app)

For each one, try to fulfill the following four steps:

- whenever possible speak aloud your thoughts and moves
a. Spend a few minutes navigating the homepage and reading the news titles.
b. Choose two news stories from each site, access them and read them.
c. Go back to the homepage and look for non news stories items, like quizzes, polls, meet the reporters, etc.
d. Try one of those feature per site.

29. Which of the websites did you like the most? Why? *

30. Please state your position regarding the following statement and explain why: The news in this website seemed relevant and important *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firstnews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogonews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

31. Please state your position regarding the following statement and explain why: I was engaged by the news presented in this website. *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firstnews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogonews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

32. Please state your position regarding the following statement and explain why: The news seemed well structured *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firstnews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogonews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

33. Please state your position regarding the following statement and explain why: The site's design is cool. *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firstnews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogonews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
34. Please state your position regarding the following statement and explain why: The site is fun to use *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firstnews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogonews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

35. Please state your position regarding the following statement and explain why: The site is easy to navigate *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firstnews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogonews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

36. Please state your position regarding the following statement and explain why: I would recommend this website to a friend *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsround</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firstnews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogonews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News-o-Mattic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

37. Did you already know any of this website? If yes, can you please describe how often have you accessed it and on what occasions?

**News literacy education and gaming**

Now just imagine a friend suggested two games related to news and journalism. Just try them out for about 5 minutes each or until you are finished.

- Information meltdown
- News tutor

38. Please state your position regarding the following statement and explain why: The site/app is interesting. *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information meltdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News tutor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

39. Please state your position regarding the following statement and explain why: The site/app design is cool. *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information meltdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News tutor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

40. Please state your position regarding the following statement and explain why: The site/app is fun to use. *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information meltdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News tutor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
41. Please state your position regarding the following statement and explain why: The site/app is easy to navigate. *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information meltdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News tutor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

42. Please state your position regarding the following statement and explain why: I would recommend this site/app to a friend. *

<table>
<thead>
<tr>
<th></th>
<th>I don't know</th>
<th>I don't agree</th>
<th>I agree a little</th>
<th>I agree</th>
<th>I strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information meltdown</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>News tutor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

43. Did you already know any of this website? If yes, can you please describe how often have you accessed it and on what occasions? *

44. From all the 6 digital projects you tried out, which one was your favorite and why? *

45. Which one was the one you disliked the most and why? *

46. With which one did you felt you learnt the most? Please explain. *

47. With which one did you felt you learnt the least? Please explain. *

48. Do you think you will ever return to any of this websites/apps? *

49. Now if you were given the chance to build a site to deliver news to children and improve their knowledge about journalism, what features would you include? Only fill in if you have changed your mind regarding the answer you gave at the beginning.

50. Additional notes.
Appendix II

Interview with Key Informants’ Guide

- How many people work at [project’s name]?
- How the idea to create did [project’s name] came up?
- Could you briefly tell me [project’s name] history?
- Why have you chosen to address elementary/middle/high school students?
- Why have you chosen the news literacy lessons that you did?
- What other news literacy lessons would you say that are crucial to teach to children too?
- Can you share some analytical data (where are people accessing; how many people use [project’s name] at the same time; how long do they take to complete it...)?
- What feedback from the users have you been getting?
- Do you have an idea in which school class or other circumstances is the --- most used (Englisg, social studies, extra-curricular, at home)?
Appendix III

Prototype Working Documents – Games’ Story Lines
(mostly in Portuguese)

Script of Game 1 (version 1)

Faz de conta que és um jornalista e trabalhas numa redacção. Uma redacção é o local onde os jornalistas escrevem e editam as notícias. Acabaste de chegar quando o teu editor te chama.


Que objectos levas contigo?

<table>
<thead>
<tr>
<th>Foto</th>
<th>Audio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bloco de notas e caneta</td>
<td>Boa escolha! Um jornalista tem sempre um bloco ou caderno onde pode tomar notas para não se esquecer do que lhe disseram</td>
</tr>
<tr>
<td>Máquina fotográfica</td>
<td>Boa ideia! A máquina fotográfica pode ajudar a captar imagens para te recordares mais tarde ou até para publicar no jornal.</td>
</tr>
<tr>
<td>Escova de dentes</td>
<td>Tens a certeza? Devemos sempre escovar os dentes para não ter cáries. Mas será que precisas da escova de dentes no jardim zoológico? Talvez seja melhor escovar os dentes antes de sair da redacção, não?</td>
</tr>
<tr>
<td>Caneca</td>
<td>Tens a certeza? Ainda não bebeste o leite do pequeno-almoço? É melhor beber antes de sair. Não sei se a caneca te será muito útil no zoo.</td>
</tr>
</tbody>
</table>

-Vrum

-Bom dia. Sou Alice Costa, o director do jardim zoológico. É o repórter do jornal As Notícias?

-Sim

-Oh! Muito prazer. Venha comigo. Vou levá-lo até ao recinto onde estavam os macacos e apresentá-lo ao tratador. Este animal aqui à sua esquerda, no meio das ervas, é o jaguar. Sabe, já trabalho neste zoo há 15 anos e é a primeira vez que temos um caso de fuga de animais.

-Não

-Hm. Um jornalista deve sempre identificar-se. Assim não conseguiste obter mais informações da directora do zoo e não descobriste o que aconteceu aos macacos. Quando chegaste à redacção, o teu editor ficou super zangado. O jogo acaba aqui. FIM 1 (jogo acaba)
Lembras-te qual era a missão que o editor do jornal te tinha pedido? Descobrir quem anda a roubar macacos e porquê. Aproveita para colocar alguma questão à directora.

- Eram bonitos os macacos?

  - Sim, quero dizer... eram macacos como todos os macacos...
  
  Editor: Hm, não sei se essa pergunta nos ajuda a deslindar o mistério.

- Sabe quem anda a roubar macacos?


- Então não tem ideia sobre quem possa ser o responsável?

  - Hm, pois tenho pensado muito nisso. Eu não vi ninguém roubar os macacos. Mas há dias passou por aí um senhor suspeito. Acho que ele trabalha num circo. E passou uma tarde inteira a observar os macacos e a tirar notas. Mas eu já dei essa informação à polícia. É melhor falar com eles.

- Gosto muito do seu colete. Onde é que o comprou?

  
  Editor: por vezes, os jornalistas fazem perguntas não directamente relacionadas com a notícias, para colocar a outra pessoa à vontade. Mas não te esqueças de qual é o teu trabalho. O detective encarregue do caso está ali. Aproveita para o

Já sabe o que se passou com os macacos?


Sabe quem ganhou o jogo de futebol de ontem?

Oh! Que grande jogo! Um dos melhores que já vi na minha vida. Começou calminho, ninguém estava a atacar muito. Ficaram tão distraídos a falar sobre o jogo que não conseguiram descobrir quem roubou os macacos, nem porquê. Entretanto, está na hora de voltar para a redacção para escrever a notícia. FIM 2

----

Mas quem faria uma coisa destas?

Veja, é o dono do circo. Foi o dono do circo!

Segue para FIM 2 como em cima
-Chegas à redacção. É preciso escrever a notícia. O texto deve contar o que aconteceu, quem roubou os macacos, quando, onde e porquê. Conseguiste descobrir todas as respostas? Escolhe o melhor título.
[Todos os Fins, excepto o Fim1, vêm dar a um ecrã com opção de dois textos. Os textos são os títulos da notícia]

Título: Jogo de ontem acabou empatado

Essa não foi a história que te pedi para escreveres. Já tínhamos o correspondente de desporto a cobrir essa.

Título: Polícia considera jogo de ontem o melhor da história

Essa não foi a história que te pedi para escreveres. Já tínhamos o correspondente de desporto a cobrir essa.
Título: **Policia descobre pistas sobre roubo dos macacos**

-Hm, isso não chega! Quem roubou e porquê? Para a próxima tens de te esforçar mais.

Título: **Jogo de ontem acabou empatado**

- Essa não foi a história que te pedi para escreveres. Já tínhamos o correspondente de desporto a cobrir essa. Estás despedido!

---

Título: **Dono do circo rouba macacos do zoo**

- Hm, fizeste um bom trabalho. Podemos publicar uma notícia breve. Falta descobrir porque é que o dono do circo roubou os macacos. Para a próxima não te esqueças de

Título: **Macacos do zoo vão atrás de cascas de banana**

- Hm, não me parece que esse seja o melhor título. Não nos informa sobre quem roubou os macacos.
Game 1 Improvements

1. replacing all video for still images+áudio (keep the same áudio)

2 – add slide recap at the end of all path games

Lembra-te!

- O editor escolhe as notícias que aparecem nas páginas do jornal ou no alinhamento do telejornal.
- O jornalista recolhe informação para construir a notícia.
- Para recolher informação o jornalista faz perguntas e entrevista pessoas.
- O jornalista deve contar os factos com rigor e exactidão.
- Uma notícia tem sempre um título.

O título da notícia deve ser verdadeiro e basear-se na informação mais importante recolhida.
**Game 2**

(Percurso linear)

**Título:** As notícias são construídas

**Slide 1**

Texto+Áudio 1:
“Era uma vez um pássaro de bico longo que era irmão gémeo de um mocho. Um dia estavam ambos a passear no bosque quando se aproximaram de uma casa de madeira. Lá dentro vivia uma bruxa que não gostava nada de animais. Então, assim que os viu, a bruxa má transformou os dois irmãos em madeira. Se tivesses de escolher uma fotografia para ilustrar esta história, que foto escolherias?”

**Slide 2**

Neste slide vê-se apenas as três fotos para escolher (ficheiro: picado e contra-picado)

**Slide 3**

Neste slide aparece a foto escolhida em destaque (o destaque pode ser por exemplo com um frame à volta) e as outras duas ao lado.

Ouve-se o áudio 2 (sem se ver o texto – só se vêem as fotos):
“Não há uma escolha totalmente certa ou errada. As três fotos são dos gémeos transformados em madeira. Mas mostram perspectivas diferentes. Na primeira, tirada de baixo para cima, nem sequer se consegue perceber que figura é aquela. A segunda mostra a figura de frente. E a terceira, tirada de cima para baixo, dá-nos a sensação dos gémeos serem mais baixos que nós. A foto do meio é a que mostra a perspectiva mais comum em que se vê os dois gémeos à nossa altura. Quando os jornalistas contam uma notícia, também eles escolhem o ângulo sobre o qual a contam. Ao fazerem essa escolha, os jornalistas seguem um conjunto de regras éticas para representar a realidade da forma mais honesta possível. Mas, não te esqueças, as notícias são uma construção sobre a realidade e dependem da perspectiva de quem as conta.”

**Slide 4**

Áudio 3+Texto:
“E se as fotos que tivesses para ilustrar a história fossem antes estas? Qual escolherias?”

**Slide 5**

Neste slide vê-se apenas as quatro fotos para escolher (ficheiro: plano próximo e geral)

**Slide 6**

Neste slide aparece a foto escolhida em destaque (o destaque pode ser por exemplo com um frame à volta) e as outras três ao lado.

Ouve-se o áudio 4 (sem se ver o texto – só a ver-se as fotos):
“Outra vez, não há uma escolha totalmente certa ou errada. Mas a foto em que se vê a casa atrás dos irmãos de madeira ilustra duas partes da história, por isso, é mais completa. Todas as fotos foram obtidas no mesmo sítio, mas mostram imagens diferentes por causa do uso da lente na câmara. Quando os jornalistas contam uma notícia, escolhem contar uns factos
e não contam outros por falta de tempo ou espaço. Mais uma vez, ao fazerem essas escolhas, os jornalistas seguem um conjunto de regras éticas para não deturpar demasiado a realidade. Mas, não te esqueças, as notícias são uma construção sobre a realidade e dependem da perspectiva de quem as conta.

**Slide 7**

*Lembra-te!*

- As notícias podem ser contadas através de vários ângulos ou perspectivas.
- Os jornalistas escolhem sempre um ângulo, quando constroem a notícia.
- Os jornalistas seguem certas regras (ou princípios éticos) para construir a notícia.
- Essas regras dizem que o jornalista deve contar os factos com rigor e exactidão.
- Essas regras também dizem que o jornalista deve escolher o ângulo da notícia com honestidade.
**Game 3**  
(Percurso linear)

**Título:**  
Vamos escrever uma notícia!

**Slide 1**  
Texto 1 / Audio 1  
“Olá jornalista júnior! Aqui vais aprender a escrever uma notícia em menos de cinco minutos. Preparado? Vamos a isso.”

**Slide 2**  
Texto 2 /Áudio 2  

**Slide 3**  
Texto 3 / Áudio 3  
“Agora, pensa no teu livro preferido. Procura lembrar-te da história.”

**Slide 4**  
Tabela com campos para inserir texto  
Áudio 4  

<table>
<thead>
<tr>
<th>E agora escreve a notícia. Basta responder às seguintes perguntas:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quem é a personagem principal?</td>
</tr>
<tr>
<td>O que é que essa personagem fez?</td>
</tr>
<tr>
<td>Quando é que isso aconteceu?</td>
</tr>
<tr>
<td>Onde é que se passou?</td>
</tr>
<tr>
<td>Por que é que isso aconteceu?</td>
</tr>
<tr>
<td>Como é que essa personagem fez isso?</td>
</tr>
</tbody>
</table>

**Slide 5**  
Texto 5 / Áudio 5  
“Aqui está o texto da tua notícia. Podes corrigir alguma imprecisão se quiseres e acrescentar um título. O título deve ser curto e informativo.”

**Campo 1: Título: texto editável (Max. 45 caracteres com espaços)**

**Campo 2: aparece o texto junto (o sistema deverá automaticamente capitalizar a primeira letra do nome e colocar em minúsculas todas as outras, retirando pontuação no meio e acrescentando ponto final no fim /// - dar a opção ao utilizador de editar o texto)**

**Slide 6**  
Texto 6 / Áudio 6  
“Eis a tua notícia. Parabéns jornalista!”
Lembra-te!

- O texto noticioso tem de responder a seis perguntas:
  - Quem?
  - Fez o Quê?
  - Quando?
  - Onde?
  - Como?
  - Porquê?
- Uma notícia tem sempre um título.
- O título da notícia deve ser verdadeiro e basear-se na informação mais importante recolhida.
Appendix IV

Prototype published news stories’ examples

Uma loja sem empregados e sem caixas para pagar

Nos Estados Unidos, abriram o primeiro supermercado sem empregados e sem caixas para pagar. Mas nada é de graça! À entrada, os clientes registam-se com o seu telemóvel. Associado ao telemóvel está uma conta online e o cartão de crédito. Por isso, quando o cliente sai a conta é-lhe automaticamente cobrada. Chama-se Amazon Go e pertence a uma loja online que se chama Amazon.

O rio Tejo está morto?

O ministro do Ambiente disse que parte do rio Tejo está morta por causa da poluição. O que significa que um "rio está morto"? Quer dizer que há tanta poluição que quase não existe oxigénio para os peixes e as algas respirarem. As autoridades andão a tentar descobrir de onde vem a poluição. Pensa-se que deve vir das fábricas de papel que existem à beira do rio Tejo. A poluição forma um manto de espuma. Para o rio voltar a ficar mais limpo, as fábricas não podem deitar tantos resíduos, Ou seja, têm de controlar as descargas de poluição para a água.
Entre terça e quinta-feira vai estar muito frio

O Instituto de Meteorologia avisa que as temperaturas vão baixar sete graus a partir de terça-feira. O Instituto de Meteorologia é o centro onde se analisam dados sobre o clima e se fazem previsões sobre o tempo. Para te protegeres do frio deves vestir várias camisolas. Podes brincar lá fora, mas não te esqueças do cachecol, gorro, luvas e meias quentes. Sopas quentes e bebidas quentes, como chá, também ajudam.

Portugal tem cada vez menos alunos fracos

Há cada vez menos alunos com maus resultados em leitura, matemática e ciência em Portugal. Mas no resto da Europa acontece precisamente o contrário. Ou seja, na Europa está a crescer o número de alunos com resultados fracos a leitura, matemática e ciência. Esta análise é feita num relatório europeu onde se comparam os dados dos testes PISA de 2012 e 2015. Os testes PISA são provas de aferição que não contam para a tua avaliação, mas permitem recolher dados sobre o que os alunos de cada país sabem sobre leitura, matemática e ciência.
APPENDIX V
Pilot questionnaire, implemented during the library’s pilot study
(October/November 2017)

Assim se fazem as notícias

Obrigada por te inscreveres na acção “Assim se Fazem as Noticias”. Eu chamo-me Ioli Campos e sou estudante como tu. Estou a fazer um estudo avançado, que se chama doutoramento. O meu trabalho é sobre literacia para as notícias para crianças dos 7 aos 9 anos. Vou ler algumas histórias e convide-te a experimentares um jogo de computador sobre jornalismo. Gostaria de contar com a tua ajuda para avaliar o jogo. Não há respostas certas, nem erradas. Tu não estás a ser avaliado, pelo contrário, vais ajudar-me a avaliar o jogo como se fosses um professor. Vou-te pedir que respondas a algumas perguntas antes e depois de jogar. Peço-te que sejas o mais honesto possível nas tuas respostas. Se não sabes a resposta, não há problema nenhum, responde não sei.

*Obrigatório

1. Escreve o teu número de código

Primeira Parte

Classifica quanto concordas ou não com as seguintes ideias.

2. Não gosto de ter de pensar muito.
   Marcar apenas uma oval.

   1   2   3   4   5
   😞 DISCORDO TOTALMENTE ☐ ☐ ☐ ☐ ☐ 😃 CONCORDO TOTALMENTE

3. Prefiro fazer cosas que desafiam as minhas capacidades intelectuais em vez de cosas que não obrigam a pensar muito.
   Marcar apenas uma oval.

   1   2   3   4   5
   ☐ ☐ ☐ ☐ ☐

4. Tenho controlo sobre a informação que recebo dos media.
   Marcar apenas uma oval.

   1   2   3   4   5
   ☐ ☐ ☐ ☐ ☐
5. Se estiver mal informado pelos media, a culpa é minha.
   Marcar apenas uma oval.
   
   |   |   |   |   |
   |   |   |   |   |

6. Se prestar atenção a diferentes fontes de noticias, posso evitar ser mal informado.
   Marcar apenas uma oval.
   
   |   |   |   |   |
   |   |   |   |   |

7. Sei distinguir ficção de não ficção.
   Marcar apenas uma oval.
   
   |   |   |   |   |
   |   |   |   |   |

8. Sei distinguir publicidade de noticias.
   Marcar apenas uma oval.
   
   |   |   |   |   |
   |   |   |   |   |

Nas perguntas seguintes, assinala a opção correcta.

9. Um anúncio é diferente de uma notícia porque:
   Marcar apenas uma oval.
   
   |   |   |   |   |
   |   |   |   |   |

10. Dentro de um jornal encontramos:
    Marcar apenas uma oval.
    
    |   |   |   |   |
    |   |   |   |   |
11. Qual dos seguintes jornais geralmente se considera mais sensacionalista? 
   Marcar apenas uma oval.
   - [ ] Público
   - [ ] Expresso
   - [ ] Correio da Manhã
   - [ ] Não sei

12. Que canal de televisão é público? 
   Marcar apenas uma oval.
   - [ ] RTP
   - [ ] TVI
   - [ ] SIC
   - [ ] não sei
   - [ ] Outra: ________________________________

13. Quem é que decide quais são as notícias que aparecem no telejornal? 
   Marcar apenas uma oval.
   - [ ] o jornalista
   - [ ] o editor
   - [ ] não sei

14. Quem é que faz a notícia? 
   Marcar apenas uma oval.
   - [ ] o jornalista
   - [ ] o editor
   - [ ] não sei

15. Como é que um jornalista faz uma notícia? 
   Marcar apenas uma oval.
   - [ ] procura informação e faz entrevistas
   - [ ] copia dos livros
   - [ ] não sei
16. Uma das críticas que se fazem geralmente às notícias é que elas não são objectivas, ou seja, não são um espelho da realidade. O que é que achas que isso quer dizer? 
Marcar apenas uma oval.
   - A notícia que um jornalista conta é apenas uma forma de contar o que aconteceu. Podem haver outras formas de contar a mesma notícia.
   - Os jornalistas só contam os factos da história.
   - As notícias são inventadas.
   - Não sei

17. As pessoas que vêem muitas notícias na televisão, costumam pensar que o mundo é:
Marcar apenas uma oval.
   - mais violento e perigoso do que realmente é
   - menos violento e perigoso do que realmente é
   - igualmente violento e perigoso como realmente é
   - não sei

18. Se um assunto aparece muito nas notícias, as pessoas que vêem as notícias podem:
Marcar apenas uma oval.
   - pensar que esse assunto é mais importante.
   - pensar que esse assunto é menos importante.
   - não pensam que esse assunto é nem mais, nem menos importante
   - não sei

Classifica quanto concordas ou não com as seguintes ideias.

19. Os jornalistas contam as coisas como aconteceram.
Marcar apenas uma oval.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>😞 DISCÔRDÔ TOTALMENTE</td>
<td></td>
<td></td>
<td></td>
<td>😞 CONCÔRDÔ TOTALMENTE</td>
</tr>
</tbody>
</table>

265
20. Os jornalistas contam as coisas de forma justa.
Marcar apenas uma oval.

1 2 3 4 5

21. Não se pode confiar no que os jornalistas dizem.
Marcar apenas uma oval.

1 2 3 4 5

Nas perguntas seguintes, assinala todas as opções que estiverem certas.

22. Numa semana típica, tu costumas:
Marcar tudo o que for aplicável.

☐ ver/ler notícias na Internet (computador ou telemóvel)
☐ ver o telejornal ou qualquer outro programa de informação
☐ ler notícias em papel
☐ ouvir notícias na rádio

23. Se respondeste que sim a alguma das opções anteriores, com quem costumas ver, ouvir ou ler esses meios?
Marcar tudo o que for aplicável.

☐ Sozinho
☐ Com colegas na escola
☐ Com pais e/ou irmão mais velho

24. Que programas televisivos de informação, sites, rádios/podcasts ou jornais/revistas costumas ler, ver ou ouvir?
Classifica quanto concordas ou não com as seguintes ideias.

25. Costumo ver os meus pais a verem, ouvirem ou lerem as notícias todas as semanas.
   Marcar apenas uma oval.

   1  2  3  4  5
   😞 DISCordo TOTALMENTE  ☐  ☐  ☐  ☐  ☐ ☞ CONCordo TOTALMENTE

26. Costumo discutir as notícias com os meus pais.
   Marcar apenas uma oval.

   1  2  3  4  5
   ☐  ☐  ☐  ☐  ☐

27. Costumo ouvir os meus pais a falarem sobre as notícias, mas não costumo participar nessas conversas.
   Marcar apenas uma oval.

   1  2  3  4  5
   ☐  ☐  ☐  ☐  ☐

Nas duas perguntas seguintes, assinala a resposta certa:

28. Quem é António Costa?
   Marcar apenas uma oval.

   ☐ Primeiro-Ministro
   ☐ Embaixador das Nações Unidas
   ☐ Presidente da Câmara do Porto
   ☐ Não sei

29. Este Verão houve incêndios muito grandes e trágicos. Onde?
   Marcar apenas uma oval.

   ☐ No centro do país
   ☐ Na ilha da Madeira
   ☐ Não sei

30. Tenho
   Marcar apenas uma oval.

   ☐ 7 anos
   ☐ 8 anos
   ☐ 9 anos
   ☐ outro
31. Eu sou
   Marcar apenas uma oval.
   
   ☐ Rapaz
   ☐ Rapariga

32. Alguma vez participaste num projecto sobre media ou jornalismo na escola, como fazer um jornal ou um blogue?
   Marcar apenas uma oval.
   
   ☐ Sim
   ☐ Não
   ☐ Não sei

33. Até que ano é que os teus pais andaram na escola?
   Marcar apenas uma oval.
   
   ☐ Abaixo do 9º ano (Ensino básico incompleto)
   ☐ 9º ano ou curso profissional (Ensino básico completo)
   ☐ 12º ano ou curso profissional equivalente (Ensino secundário completo)
   ☐ Universidade, mas não acabaram o curso (Frequência universitária)
   ☐ Universidade - Bacharelato ou licenciatura concluído
   ☐ Universidade – Mestrado e/ou Doutoramento concluído
   ☐ Não sei/ Não tenho a certeza

Obrigada. Sem fechar esta janela, interrompe agora o questionário e espera pelas minhas indicações para começar o jogo.

Segunda parte

34. Escreve o número de código que estava no jogo

______________________________________________________________________________

35. Gostaste do jogo?
   Marcar apenas uma oval.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>
36. Escreve uma coisa que tenhas gostado no jogo
________________________

37. Escreve uma coisa que não tenhas gostado no jogo
________________________

38. Escreve três coisas que tenhas aprendido com o jogo.
________________________

Nas perguntas seguintes, assinala a opção correcta.

39. Um anúncio é diferente de uma notícia porque:
   Marcar apenas uma oval.
   
   ☐ é uma história inventada.
   ☐ tenta vender um produto
   ☐ não sei

40. Dentro de um jornal encontramos:
   Marcar apenas uma oval.
   
   ☐ só notícias
   ☐ notícias, textos de opinião e publicidade
   ☐ não sei

41. Qual dos seguintes jornais geralmente se considera mais sensacionalista?
   Marcar apenas uma oval.
   
   ☐ Público
   ☐ Expresso
   ☐ Correio da Manhã
   ☐ Não sei

42. Que canal de televisão é público?
   Marcar apenas uma oval.
   
   ☐ RTP
   ☐ TVI
   ☐ SIC
   ☐ não sei
   ☐ Outra:
43. Quem é que decide quais são as notícias que aparecem no telejornal?
   Marcar apenas uma oval.
   ○ o jornalista
   ○ o editor
   ○ não sei

44. Quem é que faz a notícia?
   Marcar apenas uma oval.
   ○ o jornalista
   ○ o editor
   ○ não sei

45. Como é que um jornalista faz uma notícia?
   Marcar apenas uma oval.
   ○ procura informação e faz entrevistas
   ○ copia dos livros
   ○ não sei

46. Uma das críticas que se fazem geralmente às notícias é que elas não são objectivas, ou seja, não são um espelho da realidade. O que é que achas que isso quer dizer?
   Marcar apenas uma oval.
   ○ A notícia que um jornalista conta é apenas uma forma de contar o que aconteceu. Podem haver outras formas de contar a mesma notícia.
   ○ Os jornalistas só contam os factos da história.
   ○ As notícias são inventadas.
   ○ Não sei

47. As pessoas que vêem muitas notícias na televisão, costumam pensar que o mundo é:
   Marcar apenas uma oval.
   ○ mais violento e perigoso do que realmente é
   ○ menos violento e perigoso do que realmente é
   ○ igualmente violento e perigoso como realmente é
   ○ não sei

48. Se um assunto aparece muito nas notícias, as pessoas que vêem as notícias podem:
   Marcar apenas uma oval.
   ○ pensar que esse assunto é mais importante.
   ○ pensar que esse assunto é menos importante.
   ○ não pensam que esse assunto é nem mais, nem menos importante
   ○ não sei
Classifica quanto concordas ou não com as seguintes ideias.

49. Os jornalistas contam as coisas como aconteceram.
   Marcar apenas uma oval.

   1  2  3  4  5

   😞 DISCORDO TOTALMENTE   CONCORDO TOTALMENTE

50. Os jornalistas contam as coisas de forma justa.
    Marcar apenas uma oval.

   1  2  3  4  5

51. Não se pode confiar no que os jornalistas dizem.
    Marcar apenas uma oval.

   1  2  3  4  5

Com tecnologia

Google Forms
Assim Se Fazem as Notícias

Obrigada por aceitares participar na ação “Assim se Fazem as Notícias”. Eu chamo-me Ioli Campos e sou estudante como tu. Estou a fazer um estudo avançado, que se chama doutoramento. O meu trabalho é sobre literacia para as notícias para crianças dos 7 aos 9 anos.

Hoje vou convidar-te a experimentares uns jogos de computador sobre jornalismo e ler algumas histórias sobre como se fazem as notícias. Gostaria de contar com a tua ajuda para avaliar o jogo. Não há respostas certas, nem erradas. Tu não estás a ser avaliado, pelo contrário, vais ajudar-me a avaliar o jogo, como se fosses um professor. Peço-te que sejas o mais honesto possível nas tuas respostas. Se não souberes a resposta, não faz mal, responde "não sei".

Vamos começar com umas perguntas para eu conhecer melhor os teus hábitos de consumo de notícias.

*Obrigatório

1. Código

2. Idade *
   Marcar apenas uma oval.
   
   [ ] 6
   [ ] 7
   [ ] 8
   [ ] 9
   [ ] 10
   [ ] outro
3. Ano de escolaridade
   Marcar apenas uma oval.
   - 2º
   - 3º
   - 4º
   - outro

4. Género *
   Marcar apenas uma oval.
   - Rapaz
   - Rapariga

5. Costumas usar a Internet? *
   Marcar apenas uma oval.
   - Não.
   - Sim, todos os dias.
   - Sim, pelo menos uma vez por semana.
   - Sim, uma a duas vezes por mês.

6. Alguma vez usaste a Internet para ler, ver ou ouvir notícias? *
   Marcar apenas uma oval.
   - Sim
   - Não

7. Alguma vez participaste num projeto sobre media ou jornalismo na escola, como fazer um jornal ou um blogue ou ir numa visita de estudo a um jornal ou televisão? *
   Marcar apenas uma oval.
   - Sim
   - Não
   - Talvez
8. Se respondeste sim, que projeto foi esse?


Notícias em casa

9. Costumas ver os teus pais a verem, ouvirem ou lerem as notícias? *
   Marcar apenas uma oval.
   
   [__] Sim
   [__] Não

10. Costumas falar com os teus pais sobre as notícias? *
    Marcar apenas uma oval.
    
    [__] Sim
    [__] Não

11. Costumas ouvir os teus pais a falarem sobre as notícias?
    Marcar apenas uma oval.
    
    [__] Sim
    [__] Não
Notícias do dia

12. Quem é António Costa?
Marcar apenas uma oval.

☐ Primeiro-ministro
☐ Embaixador das Nações Unidas
☐ Presidente da República
☐ Não sei

13. Este Verão houve incêndios muito grandes e trágicos. Onde?
Marcar apenas uma oval.

☐ No centro do país, próximo de Pedrogão.
☐ Na ilha da Madeira.
☐ Não sei.

14. Na semana passada, saíram os rankings das escolas. Assinala a frase certa:
Marcar apenas uma oval.

☐ Os rankings baseiam-se nos exames do 1º ciclo.
☐ Os rankings baseiam-se nos exames do 9º e 12º ano.
☐ Não sei.
Jornalismo

15. Um anúncio é diferente de uma notícia, porque... *
   Marcar apenas uma oval.
   
   ☐ é uma história inventada.
   ☐ tenta vender um produto.
   ☐ não sei.

16. Quem é que decide quais são as notícias que aparecem no telejornal? *
   Marcar apenas uma oval.
   
   ☐ o jornalista
   ☐ o editor
   ☐ não sei

17. Costuma-se dizer que as notícias não são um espelho da realidade. O que é que achas que isso pode querer dizer? *
   Marcar apenas uma oval.
   
   ☐ A notícia que um jornalista escreve tem algumas informações inventadas.
   ☐ A notícia que um jornalista escreve é apenas uma forma de contar o que aconteceu.
   Podem haver outras formas.
   ☐ Não sei.

18. Qual dos seguintes jornais se considera mais sensacionalista?
   Marcar apenas uma oval.
   
   ☐ Correio da Manhã
   ☐ Público
   ☐ Não sei
19. Como é que um jornalista faz uma notícia? 

   Marcar apenas uma oval.

   ○ Procura informação e faz entrevistas.
   ○ Procura informação, copia dos livros e faz entrevistas.
   ○ Não sei.

Obrigada. Sem fechar esta janela, interrompe agora o questionário e chama-me.

20. Qual foi o título que escolheste no final do jogo "Repórter no Zoo":

Sem fechar esta janela, podes agora experimentar os três jogos e criar uma capa de jornal. Quando tiveres terminado, volta a esta janela, carrega em "next" para responder só a mais algumas perguntas. Chama-me se precisares de ajuda.

Faz de conta que és um professor...
21. Ajuda-me a corrigir estas respostas, assinalando as que estão certas e erradas. Se não souberes, assinala “não sei”. *
Marcar apenas uma oval por linha.

<table>
<thead>
<tr>
<th></th>
<th>Verdadeiro</th>
<th>Falso</th>
<th>Não sei</th>
</tr>
</thead>
<tbody>
<tr>
<td>O editor escolhe as notícias que aparecem nas páginas do jornal ou no alinhamento do telejornal.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>O jornalista deve contar os factos com rigor e exactidão</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Uma notícia nem sempre tem título.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>O título da notícia não tem de ser verdadeiro, se for apelativo.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>As notícias podem ser contadas através de vários ângulos ou perspectivas.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Os jornalistas seguem certas regras (ou princípios éticos) para construir a notícia.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Há notícias que só respondem a três perguntas: Quem? Onde? Como?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Faz de conta que és um programador e ajuda-me a avaliar e melhorar o jogo...

22. Classifica em geral quão gostaste de todo o site. *
Marcar apenas uma oval.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
| Detestei | ☐ | ☐ | ☐ | ☐ | Adorei
23. Escreve três coisas que tenhas aprendido com os jogos.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

24. Qual foi a parte que mais gostaste? *

Marcar apenas uma oval.

☐ O jogo com as fotografias de madeira.

☐ O jogo em que respondemos a perguntas sobre o livro que mais gostámos.

☐ O jogo do jardim zoológico.

☐ Criar a capa do jornal.

25. Classifica quão gostaste dos seguintes elementos: *

Marcar apenas uma oval por linha.

<table>
<thead>
<tr>
<th>Detestei</th>
<th>Não gostei</th>
<th>Gostei mais ou menos</th>
<th>Gostei</th>
<th>Adorei</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poder fingir que era um jornalista, no jogo &quot;repórter do zoo&quot;:</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Dos comentários do editor no jogo &quot;repórter no zoo&quot;.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Poder escolher que perguntas fazer, no jogo &quot;repórter no zoo&quot;</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Escolher os títulos para a capa do jornal.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Escrever uma notícia, no jogo &quot;Vamos escrever uma notícia!&quot;</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Escolher fotos, no jogo &quot;As notícias são construídas&quot;</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Ter uma explicação no final dos jogos</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

26. Preferias que um jogo como o "repórter no zoo", em que podes fingir ser um jornalista, contasse uma história verdadeira ou de fantasia?

Marcar apenas uma oval.

☐ Real ou verdadeira

☐ A fingir ou de fantasia
28. Voltarias a jogar algum destes jogos? *  
Marcar apenas uma oval.

☐ Sim  
☐ Não  
☐ Talvez

Com tecnologia  
Google Forms
Appendix VII

Consent Forms’ Example

Nº (a preencher pela investigadora):_________

Autorização

Nota para o encarregado de educação

Exmo. Sr/a. Encarregado de Educação,

Chamo-me Ioli Campos, sou investigadora de doutoramento em medias digitais no programa da Universidade do Texas em Austin / Portugal Colab, tendo 17 anos de experiência profissional em jornalismo. A investigação intitulada “Improving News Literacy Among Children from 7 to 10 Years Old” é financiada pela FCT com a bolsa SFRH/BD/52609/2014, e orientada pelo Professor Doutor António Granado.

No âmbito da minha investigação desenvolvi um atelier de hora e meia a que chamei “Assim se Fazem as Notícias”. O objectivo é fomentar a literacia para as notícias entre as crianças. A acção consiste na leitura de três histórias e na experimentação de um jogo de computador desenvolvido em parceria com a Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa. Durante a acção os participantes serão convidados a responder a algumas questões sobre o jogo. Com a recolha desses dados para investigação académica pretende-se estudar como podemos melhorar a literacia para as notícias das crianças dos 7 aos 9 anos. As perguntas serão adequadas à faixa etária dos participantes e será garantido o anonimato das crianças em trabalhos posteriores.

Espera-se que, com esta acção, as crianças ampliem o seu entendimento sobre o que é o jornalismo e como trabalham os jornalistas.

A participação no referido atelier é inteiramente voluntária e as crianças são totalmente livres de não responder às perguntas se não quiserem.

Para esclarecimentos adicionais, pode entrar em contacto directo com a doutoranda através do email xxxxxxxxxxxxxxxxxxxxxxxxx ou do telemóvel xxxxxxxxxx.

A doutoranda,

O orientador,

Autoriza que o seu educando participe na acção, que responda ao questionário e que seja gravado o som da acção, para facilitar a análise posterior? Não será recolhida qualquer tipo de imagem (nem fotos, nem vídeo).

Nome do encarregado de educação: ____________________________________________

Assinatura do encarregado de educação: _________________________________________

Data:_________________
Nº (a preencher pela investigadora):_________

Autorização

Nota para a criança

Olá,

Obrigada por te inscreveres na acção “Assim se Fazem as Notícias”. Eu chamo-me Ioli Campos e sou estudante como tu. Estou a fazer um estudo avançado, que se chama doutoramento. O meu trabalho é sobre literacia para as notícias para crianças dos 7 aos 9 anos. Neste workshop, vou ler algumas histórias, convidar-te a experimentares um jogo de computador sobre jornalismo e fazer-te algumas perguntas. Gostaria de contar com a tua ajuda para avaliar o jogo. Não há respostas certas, nem erradas. Tu não estás a ser avaliado, pelo contrário, vais ajudar-me a avaliar o jogo, como se fosses um professor. Peço-te que sejas o mais honesto possível nas tuas respostas.

Para participar na acção, deves ter a autorização do teu encarregado de educação. Se quiseres participar, preenche o teu nome e assina em baixo. És inteiramente livre de escolher se queres ou não participar na acção.

Nome do educando:______________________________________________________

Assinatura do educando:________________________________________________

Data:____________________
