Abstract: This article is a literature review of scientific studies published on literacy and digital literacy from 2000 to 2013. The aim is to provide a quantitative and qualitative analysis of these studies based on the data obtained from the Scopus citation database. The data analyzed are: the evolution of the number of scientific studies on literacy and digital literacy in the period between 2000 and 2013; the number and nationality of authors with 3 or more published scientific works on these two concepts have during this period; and predominant research lines on the concepts of literacy and digital literacy over this period of 13 years. Based on this literature review, we can state that the most investigated literacy processes are those related to Web 2.0 practices.

Keywords: Literacy, digital literacy, new literacy, reading, writing.

Resumen: este artículo consiste en una revisión bibliográfica de los estudios científicos que se han publicado entre el año 2000 y 2013 sobre alfabetización y alfabetización digital. El objetivo es ofrecer un análisis cuantitativo y cualitativo de estos estudios a partir de los datos obtenidos en la base de citas bibliográficas Scopus. Los datos analizados son los siguientes: la evolución del número de estudios científicos sobre alfabetización y alfabetización digital en el periodo 2000-2013, el número y la nacionalidad de autores que sobre estos dos conceptos han publicado 3 o más trabajos científicos en este periodo de tiempo y las líneas de investigación predominantes sobre los conceptos de alfabetización y alfabetización digital en esta franja de 13 años. Esta revisión bibliográfica nos permite afirmar que los procesos de alfabetización mayormente investigados son aquellos que están ligados a las prácticas de Web 2.0.

Palabras clave: alfabetización, alfabetización digital, New Literacy, lectura, escritura.

Estudos científicos sobre alfabetização e alfabetização digital indexados em Scopus: revisão bibliográfica (2000-2013)

Resumo: este artigo consiste em uma revisão bibliográfica dos estudos científicos publicados entre 2000 e 2013 sobre alfabetização e alfabetização digital. O objetivo é oferecer uma análise quantitativa e qualitativa destes estudos a partir dos dados obtidos na base de citações bibliográficas Scopus. Os dados analisados são os seguintes: a evolução do número de estudos científicos sobre alfabetização e alfabetização digital no período 2000-2013, o número e a nacionalidade de autores que sobre estes dois conceitos publicaram três ou mais trabalhos científicos neste período e as linhas de pesquisa predominantes sobre os conceitos de alfabetização e alfabetização digital nesta faixa de treze anos. Esta revisão bibliográfica permite afirmar que os processos de alfabetização mais pesquisados são aqueles que estão ligados às práticas de web 2.0.

Palavras chave: alfabetização, alfabetização digital, New Literacy, leitura, escritura.
Introduction

The United Nations Educational, Scientific and Cultural Organization defines the concept of literacy as “the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts” (Unesco, 2000). Therefore, it requires a continuous learning process, through which individuals can reach their goals, develop their knowledge and potential, and participate fully in their communities and society in general.

Literacy implies the acquisition of reading, interpreting and writing skills. Without developing these linguistic abilities, it is not possible to speak of a continuous learning process whereby individuals can develop their knowledge and potential and participate fully in their communities and society. In today’s information and communication society, the most recent research studies on the concept of literacy (Hargittai & Hsieh, 2011) state that this concept is used to define the capacity of interpreting and using digital texts, as well as digital alphabetical and numerical systems (Bhatt, 2012).

The digital skills will be one and the other according to the education policies promoted by competent authority with responsibilities in this area (Burnett, 2011). Therefore, aside from referring to scientific studies on traditional literacy practices from 2000 and 2013, this article is also a literature review of the studies dealing with what the scientific community calls ‘digital literacy’ (hereinafter referred to as DL). The aim of this review is to observe the amount of scientific studies (paper, review, book chapter)

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1 The concept of DL (New literacies) was used for the first time by David Buckingham in 1993. It refers to the new literacy practices promoted by the development of digital technology.
published from 2000 to 2013 dealing with literacy practices (hereinafter referred to as L) and digital literacy practices, the researchers on this issue and the trends under which the studies can be grouped.

Materials, Methods and Sources

The literature review of this study is based on the information provided by the bibliographic database Scopus, which was created in 2006 and contains abstracts and citations of more than 18,000 articles in all fields of science, by more than 5,000 worldwide publishers, which means over 43 million records and 23 million patents from five patent offices in the world. The research output of scientific journals in the fields of social sciences and humanities, which studies on L and DL are part of, is remarkable, with more than 5,300 titles, representing 56% of publications in Europe, the Middle East and Africa. As for the rest of citations, 42% are from America and 2% from the Asia-Pacific area. The methodology for analyzing this literature research was focused on the following keywords: ‘studies literacy’, ‘literacy studies’, ‘digital literacy’ and ‘new literacy’. The results were 69 documents for the first two keywords, 323 documents for the third and 127 for the fourth keyword (Table 1).

Table 1. Results of the literature review

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Results of the search in Scopus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studies Literacy</td>
<td>17</td>
</tr>
<tr>
<td>Literacy Studies</td>
<td>52</td>
</tr>
<tr>
<td>Digital Literacy</td>
<td>323</td>
</tr>
<tr>
<td>New Literacy</td>
<td>127</td>
</tr>
</tbody>
</table>

Evolution of the Amount of Scientific Publications on L and DL During the Period of 2000-2013

The first indicator to be analyzed is the numeric frequency of studies on L and DL published between 2000 and the end of 2013 (Figure 1). We note that Digital Literacy studies have aroused greater interest of research regarding New Literacy, Literacy Studies.
Figure 1. Evolution of scientific publications on L and DL during the period of 2000-2013

![Graph showing scientific publications from 2000 to 2013.](image)

Source: Compiled by the authors based on information supplied by Scopus

The figure shows that scientific studies on L and DL increased considerably after 2007. From that year to 2013, 458 scientific studies were published, which makes a remarkable difference compared to the 37 publications between 2000 and 2006.

**Number of Articles on L and DL Published between 2000 and 2013 and the Authors’ Nationality**

Figure 2 provides data about the number of articles published by different researchers on L and DL between 2000 and 2013. The top ten authors were chosen among 321 results, filtered by keywords ‘Digital Literacy’ and ‘New Literacy’ during this period of 13 years. All authors were considered for the ‘Studies Literacy’ and ‘Literacy Studies’ keywords.

Most researchers are from Anglo-Saxon countries (USA, UK, Australia and Canada) and fewer are from South-Africa, Ireland, New Zealand, Singapore, India, Nigeria, Kenya and Hong Kong, as shown in Figure 3.
Figure 2. Number of articles on L and DL published by authors between 2000 and 2013

![Graph showing number of articles on L and DL published by authors between 2000 and 2013.](image)

Source: Compiled by authors based on information supplied by Scopus.

Figure 3. Nationality of researchers who published about the concepts of L and DL during the period of 2000-2013

![Graph showing nationality of researchers who published about the concepts of L and DL during the period of 2000-2013.](image)

Source: Compiled by authors based on information supplied by Scopus.

Figure 3 shows that authors from countries in the Mediterranean region (47 from Spain and 9 from Italy), North Europe (6 from Germany, 14 from Norway, 7 from Finland, 5 from Belgium and 3 from Sweden) and Central Europe (7 from Slovakia), as well as from Brazil (17), South Korea (10) and Japan (5) have conducted research on L and DL to a lesser extent compared to researchers from Anglo-Saxon countries (355 in total).
Research Lines on the Concepts of L and DL During the Period of 2000-2013

The concepts of L and DL refer to a group of communicative skills to produce and interpret all types of messages in any format. Researches before 2000, when this literature research starts, analyze the social impact of hypertext in the literacy of pre-university students (Douglas, 1993), as the most mentioned studies in Scopus from 1990 to 2000. Tweddle and Moore (1994) study and question the introduction of new technologies for writing texts at school. Zaki and Johnson (1993) analyze the literacy rate of women in Pakistan in the 80’s and Hoyler (1996) reviews the main trends concerning the growth of qualitative studies in the literacy history in the United Kingdom from 1960 to the 90’s.

From 2000, research in Scopus allows to study the lines of research that are closer to the concepts of L and DL. A total of 32 studies receiving 10 or more citations between 2000 and 2013 were selected on the basis of keywords ‘Digital Literacy’ and ‘New Literacy’. Concerning the keywords ‘Studies Literacy’ and ‘Literacy Studies’, and all 69 articles were considered (Figure 4).

Figure 4. Lines of research on the concepts L and DL during the period of 2000-2013

Source: Compiled by authors based on information supplied by Scopus.
According to Figure 4, the research line with the most scientific publications is the study of literacy practices in digital learning and teaching environments (Merchant, 2007). In scientific literature it is known as ‘New Literacies’. The following literacy practices are to be highlighted:

- Bhatt and De Rook (2014) discuss the method of collecting and analyzing multimodal data during classroom-based digital literacy events.
- Finally, it is worth highlighting Bhatt’s (2012) research, which discusses the digital literacy practices with adult learners in a UK college, Barton’s paper (2011), which is concerned with people’s decision-making and communication practices, and other researchers such as Mills (2010), Säljö (2010) and McGinnis, Goodstein-Stolzenberg and Saliani (2007), who explore the theoretical framework of the pragmatic and methodological issues concerning the new studies of New Literacies.

The second research line on literacy is related to literacy studies in different sociocultural and socioeconomic environments (Willms, 2003):

- Kinloch (2009) examines undergraduate writing students’ investigations of literacy practices and acts of meaning making within a local urban community. Street (2013) develops a comparative study concerning traditional literacy practices in England and Brazil. Staples (2012b) explores the behavior of a group of African-American women coming
together to engage with popular culture narratives. Collins (2009) analyses sociolinguistic and anthropologist Hymes’s writings about American Indians and narrative and explores the close interrelations between the two. Lam and Rosario (2009) explore the literacy practices that are involved in transnational social and information networking among youth of immigrant background in the United States of America. Bulfin and North (2007) describe different literacy practices among population from 15 to 46 years in and around Melbourne, Australia. Lindmark (2003, 2005) reviews the motors driving literacy processes in Sweden.

- Three studies on African communities are highlighted: Papen (2005) explores the policy and practice of adult literacy from the National Literacy Program in Namibia; Tella and Mutula (2008) study digital literacy processes amongst undergraduate students at the University of Botswana, and Smith (2007) draws the reasons why students from Sub-Saharan Africa choose the United States as their destination for higher education because of the American literacy policies.

- Finally, concerning the literacy studies focused on sociocultural environments, there is a group of remarkable studies, whose main research lines are as follows: the relation between the literacy concept and the sociocultural approach of language teaching (Rutten, Rodman, Wright, & Soetaert, 2013; Bay, Catasús & Johed, 2014; Kasa & Hendrickson, 2006; Van Enk, Dagenais, & Toohey, 2005), the social semiotic approach of literacy processes (Rowsell, Kress, & Street, 2013), the gender awareness and literate skills (Staples, 2012b), the anthropology of literacy (Bartlett, 2011) and the eventual relations between literacy and familiar origin (Poveda, 2010).

The third research line on literacy focuses on different educational settings, such as schools and libraries (Jaeger et al., 2012; Johnson & Jent, 2005), and the most remarkable researches in this field are as follows: Lee (2012); Terra (2013); Lelters and McTavish (2013); Edwards, Minty and Miller (2013); Simon, Campano, Broderick and Pantoja (2012); Mannion, Miller, Gibb and Goodman (2009); Hull and Hernández (2008) and Sánchez and Salinas (2008) deal with literacy practices at school from working some communicative skills and their results. Brown, Micklewright, Schnepf and Waldmann (2007) and analyze the literacy practices of different areas.
of knowledge, such as mathematics and reading literacy, based on specific assessment tests in scholarly settings. Rodgers and Elias (2012), Worthman, Gardner and Thole (2011), Wiseman (2011) and Kinloch (2009) focus specifically on writing practices at school and the literacy models for students to be inspired to read and to write. Maybin (2007) analyzes the differences between the literacy practices inside and outside the scholarly environment, while Erstad, Gilje, Sefton-Green and Vasbo (2009) examine the use of Web 2.0 by secondary school students from 11 to 16 years in England.

Literacy is a concept that has always been associated to the development of a linguistic skill to be performed by all literate individuals: writing (Chicola & Ceprano, 2010). In this respect, different studies have examined the traditional writing practices in scholarly settings and the relation between school and writing practice, such as Edwards, Minty and Miller (2013), Terra (2013), Mannion et al. (2009) and Worthman, Gardner and Thole (2011), who focused on the issue of writing by following certain rules. Concerning the writing practices at school, four studies reflect on one type of writing, that is, creative writing, as a traditional school-based literacy practice. In that sense, Gillen (2013) deals with the benefits of writing postcards to consolidate literacy processes. Wiseman (2011) and Wissman (2009) focus on poetry workshops, while Kinloch (2009) examines undergraduate writing students’ investigations of literacy practices and acts of meaning making. Finally, another study to be emphasized is the one by Welson, Hull and Roche-Smith (2008), which analyzes the digital story creation process of an individual.

If the concept of literacy has always been linked to the linguistic skill of writing, it has also been logically related to reading. From a theoretical framework, Harvey, Hux and Snell (2013); Mannion et al. (2009); Edwards, Minty and Miller (2013); Goodman (2009) and Suggate (2009) examine the school’s role in the literacy practices in relation to reading. Kasper and Ünlü (2013) delve into this question from the application of Progress in International Reading Literacy Study (PIRLS), a program that provides data on the reading competence level of students with similar ages to those who participate in the PISA report. Neugebauer (2013) and Aliagas, Castellà and Cassany (2009) question the relation between academic reading and reading activity outside the school. Thus, this research studies the case of a Catalan baccalaureate student who, despite his lack of interest in academic reading, has built a varied and active reading life outside the school.
Marin (2009) examines the perceptions of teenagers on the academic reading practices at secondary school and Street (2013), Robertson et al. (2010) address literacy practices in two very particular linguistic communities: Brazil and San Juan de Terranova. El Refaie (2009) presents a case of reading literacy from caricatures on newspapers, while Leu et al. (2009) and Carrington (2005) reflect on the consequences of understanding a text when reading online.

Literacy is a concept that is also closely linked to university courses, as stated by Savin-Baden, Gourlay, Tombs, Steils, Tombs and Mawer (2010). In this research line, the above-mentioned authors Lee (2007b) and Smith (2007) focus their researches on the examination of literacy practices and their consequences in university communities in Hong Kong, Sub-Saharan Africa and South Africa.

**Conclusions**

The number of scientific studies on literacy and digital literacy during the period 2000-2013, according to bibliographic database Scopus exceeds 500 titles from 71 different researchers, as stated previously. Starting on 2007, the scientific community interested in the new literacy processes published more than half of those 500 titles. Authors from Anglo-Saxon countries, such as Meurant (10 studies), Hargittai (5 studies) and Merchant (5 studies) and, to a lesser degree from countries from Mediterranean region, such as Lacasa (5 studies), research on processes and practices of traditional literacy and digital literacy. The most cited authors are R. C. Meurant and E. Hargittai, with more than 10 references, according to Scopus.

Amongst the 101 scientific studies we have selected and analyzed to carry out the qualitative research in Scopus through the above mentioned keywords, it is observed that the scientific community has focused on studies concerning new literacies using digital tools in digital environments (37) and literacy practices in different sociocultural settings (23), mainly in communities tied to a particular cultural environment. Studies (18) on literacy practices in educational settings (schools and libraries) are also highlighted. A significant number of researches (23) focus on two literacy practices linked to the acquisition of knowledge, reading (13) and writing (10), being the two linguistic skills that help to understand, process and express any information. Finally, it is worth noting 9 researches on different
fields of literacy: higher education (5), educational policies (2), financial studies (1) and learning foreign languages (1).

It is therefore clear that most researches on literacy practices have focused on reading and writing digital texts in different educational settings in connection with the sociocultural features of the community. Thus, the study of digital tools linked to these new literacies is absolutely necessary, particularly because Web 2.0 allow users to interact and cooperate together as content creators in a virtual community. Although this concept may suggest a new version of the World Wide Web (WWW), it really does not refer to an update of the technical features, but rather to the changes concerning the use and interaction through the Web.

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