

Open Educational Resources and MOOC: the digital literacy of english as a foreign language

Recursos Educativos Abiertos y MOOC: La alfabetización digital del inglés como lengua extranjera

TOBIÁS-MARTÍNEZ, M.A. [1](#) & FUENTES-ESPARRELL, J.A. [2](#)

Received: 09/03/2019 • Approved: 12/05/2019 • Published 10/06/2019

Contents

- [1. Introduction](#)
 - [2. Theoretical Framework](#)
 - [3. Methodology](#)
 - [4. Results and Discussion](#)
 - [5. Conclusions](#)
- [Bibliographic references](#)

ABSTRACT:

This article shows how Information and Communication Technologies - ICT can contribute to the teaching-learning process of English as a foreign language - ILE (Integrated Language Environment). The objective of this research is to publicize the various possibilities available in the network for the support of the ILE as well as teachers and students, and Open Educational Resources - OER, Massive Open Online Course - MOOC, or, in Computer-Assisted Language Teaching - CALL. As for the methodology, it consists of a multi and bi-varied analysis, based on data mining, a technique applied in the area of engineering to obtain information from existing official databases on the Web, it is also complemented a bibliographical research based on critical thinking in a globalized and digital world. As a result, the ICT is a tool in the traditional or hybrid teaching-learning process, it helps in the development of the linguistic competences of critical digital literacy for both the individual and the citizens.

Keywords: Blended learning, ICT, Computer Assisted Language Learning, OER, MOOC

RESUMEN:

El presente artículo muestra como las Tecnologías de la Información y la Comunicación - TIC, pueden contribuir en el proceso de enseñanza-aprendizaje del inglés como lengua extranjera - ILE. Para lo cual se muestra la relevancia de las TIC en la Educación. El objetivo de la presente investigación es dar a conocer las diversas posibilidades con las que se cuenta en la red para el soporte del ILE tanto como a profesores como a alumnos, basados en Recursos Educativos Abiertos - REA, Cursos en línea, masivos y abiertos - MOOC, o bien, en la Enseñanza de lenguas asistida por computador - CALL. En cuanto a la metodología, consiste en un análisis multi y bi variado, a partir de la minería de datos, una técnica aplicada en el área de ingeniería para la obtención de información a partir de bases de datos oficiales existentes en la Web, asimismo se complementa de una investigación bibliográfica basada en el pensamiento crítico en un mundo globalizado y digital. Como resultado de esta investigación además de demostrar que las TIC son una herramienta en el Proceso de enseñanza-aprendizaje tradicional o híbrido, auxilia en el desarrollo de competencias lingüísticas de la alfabetización digital crítica tanto para el individuo como para la ciudadanía.

Palabras clave: Aprendizaje combinado, TIC,

1. Introduction

The English language is a global language with considerable presence in academic environments, considering its use for the dissemination of various information formats such as scientific publications and books. And it is being increasingly reinforced through the Information and Communication Technologies - ICT, in its various formats and applications (Cárdenas-Ramos, 2009).

The use and application of ICT have transcended contemporary time and space, changing the way in which the individual and society relate, in an environment of constant changes and in a globalized society. In this area, information is multiplied exponentially and transmitted without geographical barriers through the Internet.

Also, the possibilities of Internet access among other situations, have contributed to the reduction of some causes of inequality in the world through the production of social capital derived from access to information and education. All this was achieved through massively directed courses such as mass and open online courses – MOOC (Massive Open Online Course) (Britos et al., 2016).

Simple access to ICT does not guarantee by itself the effective participation of users in social practices that can carry out the production of social capital and the inclusion of these individuals in the information society (Warschauer, 2004). For there to be a formation of social capital through the use of ICT, it is necessary to make a critical use of available Technologies in favor of education and individuals. In the vision of this research, the use of ICT contemplates the development of digital literacy with its own criteria, defining it as the ability to use ICT to access, evaluate and produce relevant information (Warschauer, 2004).

The use of ICT as a support for teaching-learning activities has considerable relevance to the different technological proposals that constantly arise in a world that is in the middle of the age of knowledge and technology (Coll, 2008).

According to Lim, Ching & Churchill (2010), the Computer-Assisted Language Teaching, a concept known by its acronym CALL - Computer Assisted Language Learning has been studied by many researchers, where the results obtained indicate that these materials Digital didactics are generally effective in helping students learn, improve, as well as the teaching - learning process.

With regard to the teaching of foreign language, ICT means a promotion for students to develop the necessary skills and thus, learn about a specific topic of the language they want to learn. All this process of teaching and learning a second language can be dynamic according to the pedagogical strategies used for teachers, seeking to strengthen the indispensable skills within the activities offered by teachers: listening, speaking, reading and writing. In this case, ICT can be very useful, considering that students are increasingly connected, facilitating accessibility (Martínez, Fuentes, Freitas & Zani, 2016).

ICTs have transformed society with various innovative advantages, which have also influenced in other sectors such as communication, health, and in this case education, attracting innovation, development and the promotion of research. That is why ICTs have been integrated into our daily lives and represent a need to live together through them (Tobías, Fuentes & Biagiotti, 2017).

For all the above, there is the idea of focusing on education and the use of ICT so that this process leads to effective pedagogical innovations in relation to student training (Mill, 2013). In the globalized society where people live naturally with new technologies, they promote that most students immerse themselves in a digital technological world with a certain intimacy with digital devices and at the same time creators of social networks.

This research is based on sociocultural theory (Chaves-Salas, 2001), the theory of collective intelligence (Lévy, 1999 y 2009, González y Vátimo, 2012) and the theory of situated

learning (Sagástegui, 2004 y Díaz, 2003). Likewise, from the conceptions of digital and critical literacy to propose the MOOC through the OER (Open Educational Resources), or the MOOCs and OER for the teaching of the ILE, looking for the medium of the development of the digital and critical literacy, stimulating the development of the individual and citizenship, as well as the communication skills of the person interested in learning the target language (English). With this purpose, we make a brief review of the theories and conceptions that inform the proposals that are presented more.

2. Theoretical Framework

The notion of mediation, referring to the process by which an individual develops knowledge and interacts with the world around him through instruments or signs, is the key to sociocultural theory. Theory that analyzes knowledge being constructed from the social to the individual and vice versa in movements whether they are ontogenetic or phylogenetic (Chaves-Salas, 2001).

It is understood that ICT can be considered as an instrument of mediation, since it promotes the interaction between the student with the world and the knowledge around him. Thus, from the same theory, the acquisition of a second language is understood as a challenge of appropriation of the language and its use in a new linguistic community (Fernández, Vallejo & McAnally, 2015). Such a process, in a necessary way, passes through what we call mediation, which, in the vision of this research, can be carried out through the use of technologies and, more specifically, through the web.

In this way, Finardi & Porcino (2014), when carrying out the revision of different methodologies for the teaching of foreign languages, affirm that, although ICTs have played an important role in the methodologies of language teaching, even so, the Internet today it has the central and main role in the teaching of foreign languages. The authors base the notion of the mediation of technology to suggest that the role of internet currently goes beyond a simple artifact of mediational culture, having evidenced the transformation by which we use, teach and learn foreign languages (Chaves-Salas, 2001).

Another main concept of sociocultural theory is that of the zone of proximal development, which can be defined as the space that exists between the level of the real capacity of the individual to solve a problem in itself and the potential level that can be reached in collaboration of a more advanced partner or mediation instruments, which in our vision are ICT. Thus, the most advanced partner or mediation instrument (MOOC or OER, for this research), would work as scaffolding, strengthening learning or helping in the construction of knowledge, until the student internalizes knowledge, being able to perform the task individually (Colás, Rodríguez & Jiménez, 2005).

Another theory that visualizes knowledge as a social individual is the theory of collective intelligence (Lévy, 1999 y 2009), which can result in the exchange of knowledge, promoting the creation of new ideas aimed at human development. This theory, posed immediately after socio-cultural theory, proposes concepts of the so-called information age or cyberspace concepts to suggest how collective knowledge can be shared and disseminated in the virtual and digital context.

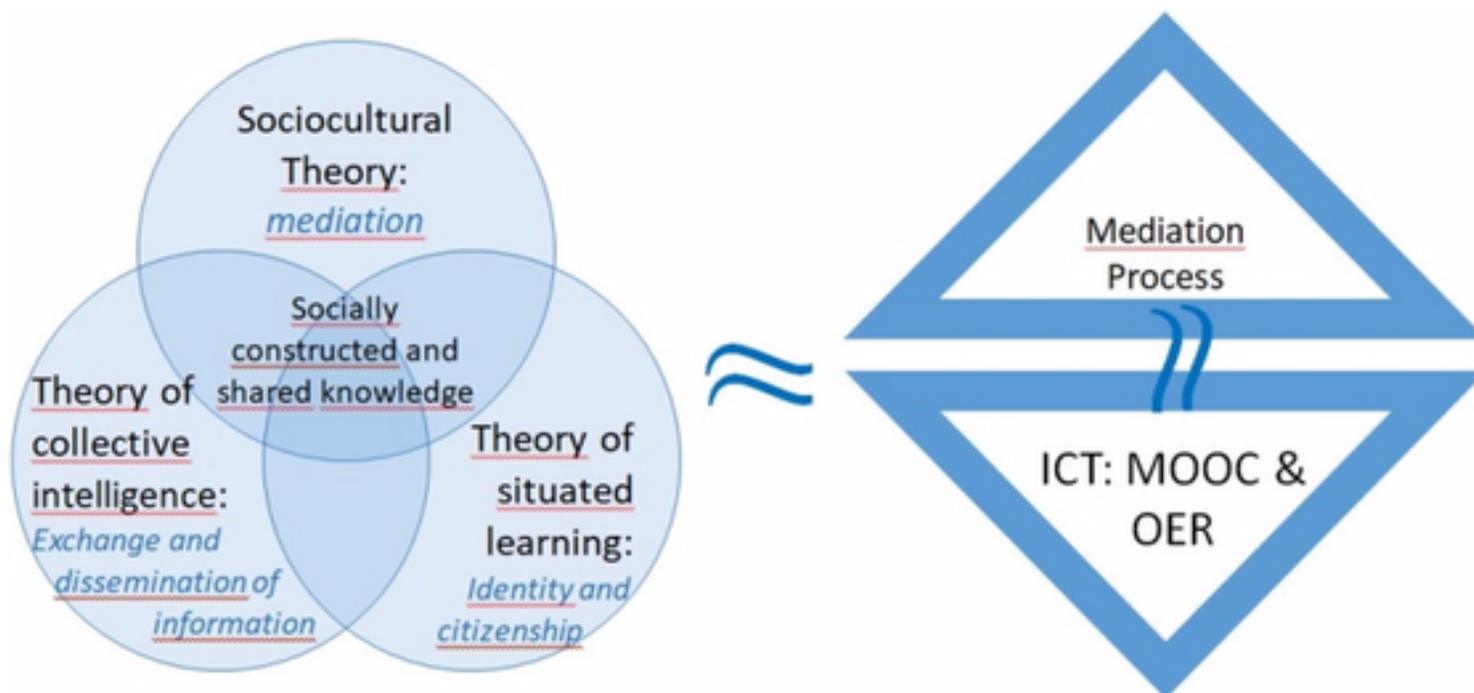
Similarly, in relation to the construction and exchange of knowledge as if it were a product of social and individual interactions, we resorted to the theory of situated learning (Lave & Wenger, 1991, Sagástegui, 2004 y Díaz, 2003), which visualizes learning as emergent from participation through of social practices. According to this theory, this process does not refer exclusively to active participation in the practices of social communities, but also to the construction of identity and citizenship in the convergence with these communities. Visualize the theory of learning located as an alternative of critical education to recognize global and local problems.

In this way, the three theories that are presented in this theoretical framework on which this study is based, have in common the fact of seeing knowledge as socially constructed and shared. From each of these theories the following ideas of each of them stand out: of the sociocultural theory, the notion of mediation; from the theory of collective intelligence, the

notion of exchange and diffusion in the information age; and finally, from the theory of situated learning, the notion of the construction of identity and citizenship in one's own context. These three ideas, in turn, support the proposal made in this study, which is that ICT is a support to increase knowledge. As shown in Figure 1.

Figure 1

Convergence of the Theories: Socio-cultural, Collective Intelligence and the Situated Learning.



Source: Own elaboration based on Lave & Wenger, 1991; Lévy, 1999; Chaves-Salas, 2001.

Immersed in a geocentric and literate society, we appreciate a constant process of literacy, which defines García (2016), as a set of social practices that dedicate writing to be a symbolic system in the same way as ICT, in specific environments, for specific purposes. According to García (2016) two literacy models can be distinguished, the autonomous and the ideological. The Autonomous constitutes individual conception of writing, separated from the social context in which it occurs, in terms of the ideological, which refers to the social and collective conception of writing, linking literacy not only to culture, but also to the relations of power that coexist in a society (Koltay, 2011).

Similarly, for Knobel (2008), literacy is conceived in and by social practices and their corresponding diversity and as such cannot be considered simply as a technical and neutral skill, without being part of the social, cultural and political context. That is, for Knobel (2008), it is precise to recognize various literacies, which are diversified according to time and space and are always in convergence with power relations and ideologies. However, in the context of cyberculture, Lévy (1999) emphasizes digital literacy, conceptualizing it as a set of material and intellectual techniques of practices, attitudes, ways of thinking and values (Koltay, 2011).

The use of technologies for the development of critical digital literacy requires the user certain skills that range from technical knowledge, ability to evaluate, eliminate, interpret, adapt and produce content and in this area Cervera & Cantabrana (2015) assert that the development of critical digital literacy represents more than an educational need, becoming a reason for survival Cervera & Cantabrana (2015).

Digital literacy is linked to the teaching of English as a foreign language to the extent that both require the development of critical thinking to avoid the danger of not receiving the relevance or accuracy of information on the Internet, as well as the ideological content of the English language as a foreign language. Critically confronting ICT in the process of developing language skills in a foreign language such as English can provide students with an opportunity to perceive technology and that language as communication tools and with local and global action, extending the possibilities of research, production and dissemination of knowledge of those individuals and communities (Warschauer, 2004).

OER and MOOC are understood as digital pedagogical tools that can contribute both to the development of digital and critical literacies, and to the production of content that contributes to the construction of knowledge and social capital on the Internet, depending on how it is used (Warshauer, 2004).

Atkins, Brown & Hammond (2007), state that an OER is teaching, learning and investigating resources that reside in the public domain or that have been published under an intellectual property license that allows their free use and can be adapted again for others. Open Educational Resources include complete courses, course materials, modules, didactic books, recorded videos, exams, tests, software and other tools, materials or techniques used to support and access knowledge.

UNESCO (2002) defines OER as an open provision of educational resources, made possible by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes.

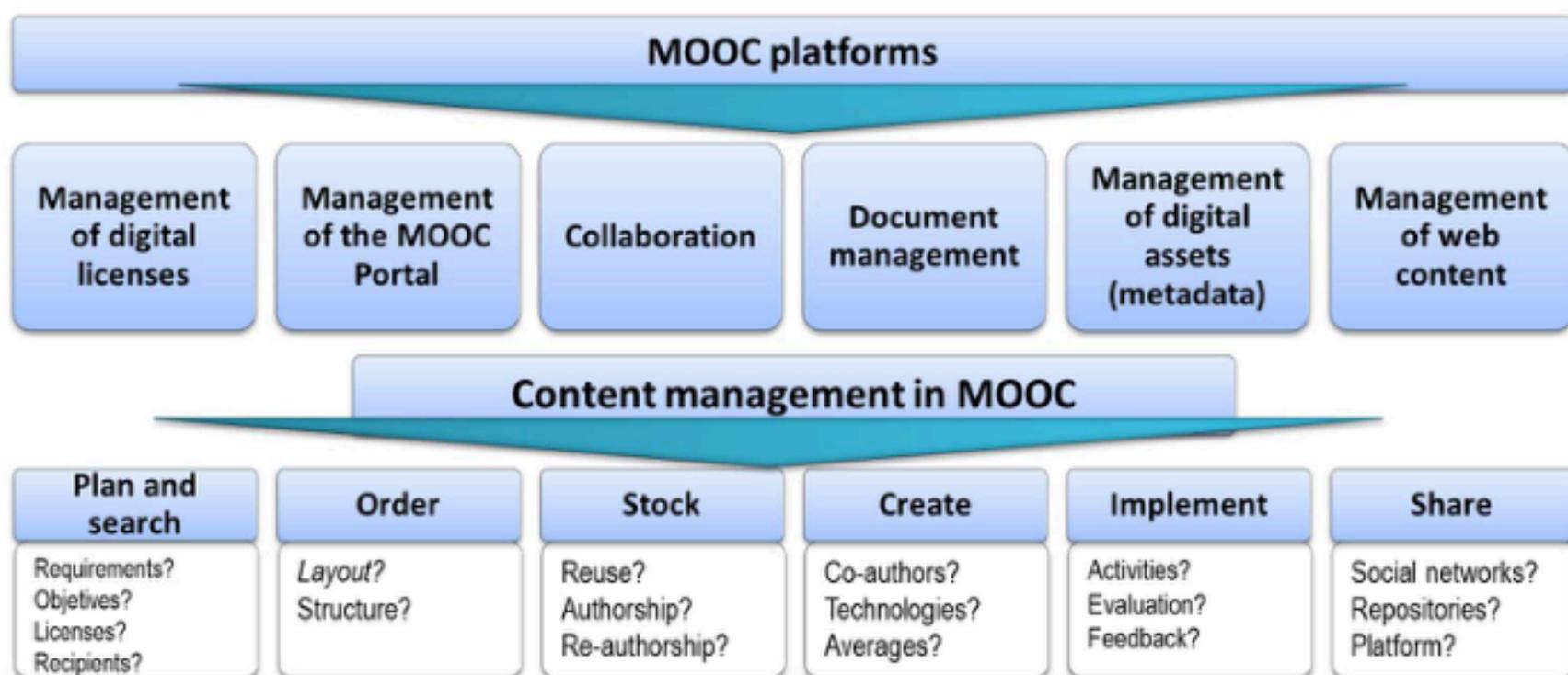
Or, still, OER is a movement that involves groups and institutions from all over the world, mainly people involved with education, culture, politics and economy. Being teachers, students, artists, legislators and others interested in free access and exchange of knowledge and in the belief that everyone has the right to a quality education (Coughlan & Perryman, 2013).

According to Martínez, Fuentes, Freitas & Zani (2016), given that a video can be considered as an OER, then they demonstrate the possibility of creating MOOCs from OER, that is, designing in a structured way OER can in the same way structure a course that leads to the creation of a MOOC. Also, the video becomes a practice already used in the traditional school and more now with the use of ICT (Tobias, 2014).

A MOOC is a massive, open, and free online course (McAuley et al., 2010), which generally does not require pre-requisites for participation or a formal certificate issuance. In addition to these characteristics, a MOOC is also related to the Web 2.0 resources, which means that it helps to potentiate the interaction between the participants.

The development of a MOOC is based on two aspects: on the one hand, the life cycle of the MOOC consists of: planning, order, storage, creation, execution and exchange. On the other hand, the model proposed by Katuu (2012), based on modules, strategies and tools aimed at serving the main purposes of the institutions or the topics to be taught. Now, Katuu (2012) leaves open the possibilities on the number of components in its model, emphasizes those that it considers important, including among others: document management, business processes, portal collaboration, knowledge management, management of digital assets and web content management as shown in Figure 2.

Figure 2
Model for the development of a MOOC



3. Methodology

It is a descriptive study through a multi and bi-varied quantitative analysis. The data was collected from existing databases on the web, carrying out a search of the customized type, procuring databases from official sites with the terms "English as a foreign language", "OER", "MOOC", "Databases". Databases for which the application of specific algorithms for the extraction of patterns (models), the latter known as data mining (Riquelme, Ruiz & Gilbert, 2006), was carried out. The methodological processes are described in Table 1.

Table 1
Methodological procedures

| Stage | Objetives | Procedures |
|---|---|--|
| Personalized search in Google search | Find formal databases according to type of research | Establishment of the variables required for the creation of the standard |
| Evaluation of the normality of the variables "English" and "foreign language" | Evaluate the standard of normality of these variables | Kolmogorov-Smirnov (KS) |
| Evaluation of the standard of the variables "MOOC" and "OER" | Evaluate the standard of normality of these variables | Kolmogorov-Smirnov (KS) |
| Bivariate data crossing | Verification of the existence of the groups formed by the crossing of the results of the two previous evaluations | H of Kruskal-Wallis, at the level of 95% confidence; Mann-Whitney U at the 99.5 level of confidence |
| Determination of the dimensions | Verify the existence of associations between groups of variables | Establishment of variables exclusion measure |

Source: Own elaboration based on Riquelme, Ruiz & Gilbert (2006)

Only records related to "English", "Foreign Language", "MOOC" and "OER" were collected, finding 56 possible records. In this study, all the analyzes were performed with the Statistical Package for the Social Sciences - SPSS 18® tools and with Microsoft Office Excel 2016®. Before the application of the statistical tests all the variables of different languages to which this "English" research was treated were disregarded.

4. Results and Discussion

As a result of the application of the Kolmogorov-Smirnov test - at the 95% confidence level, it was found that the data did not present a distribution similar to the normal one [once obtained (KS (56) Resources = .334 , p-value = .0) and (KS (56) Resources = .397, p-value = .0)]. Accordingly, nonparametric tests were applied. Next, we present the resulting groups in Table 2. The most extensive is about databases.

Table 2
Groups created according to the type of resources found

| Kind | Count |
|------|-------|
|------|-------|

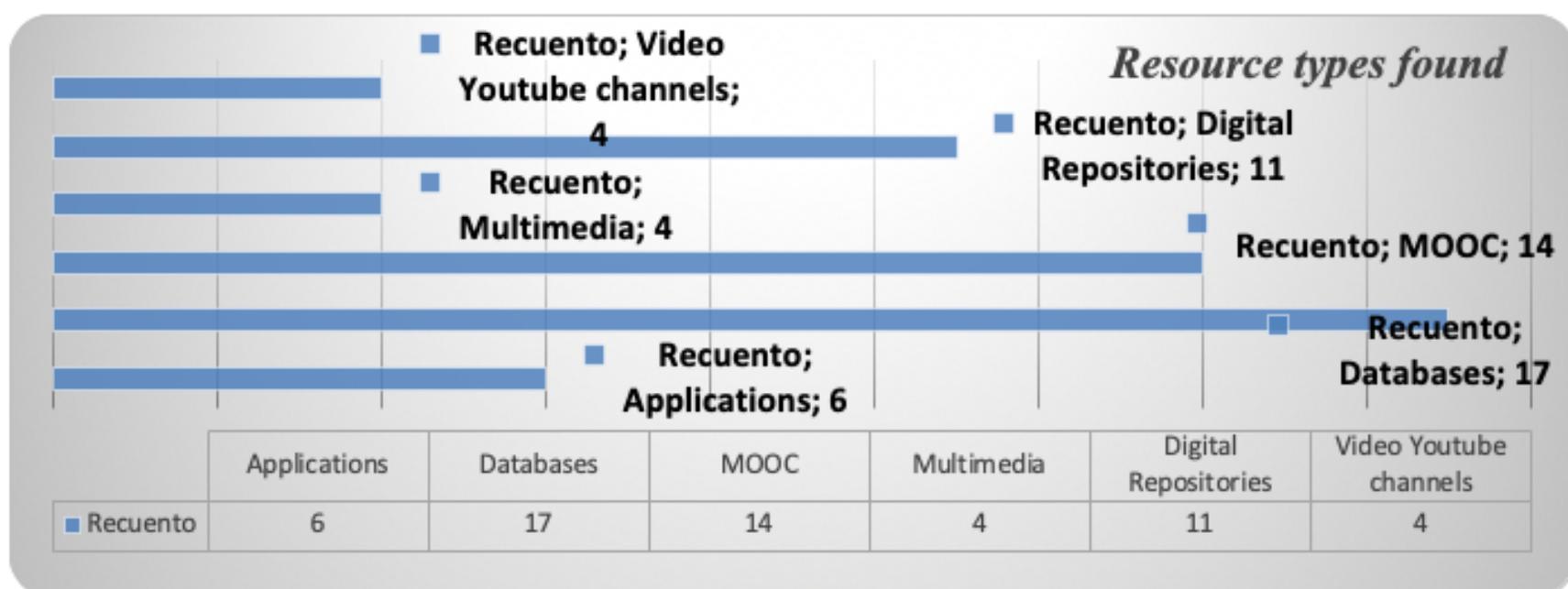
| | |
|-------------------------|----|
| Applications | 6 |
| Databases | 17 |
| MOOC | 14 |
| Multimedia | 4 |
| Digital Repositories | 11 |
| Video Youtube® Channels | 4 |

Source: self-made

To facilitate the understanding of the groups found, they were classified according to the type of digital resources, which should be noted according to the indicated filter all those presented in this research are free and with the other conditions that were identified in the methodology. As already mentioned in Figure 3, the groups created from the type of the 54 Resources found are shown.

Figure 3

Presentation of the groups according to the type of resource



Source: Own elaboration

Analyzing the groups found can also be detailed in each of them, the name of the main resources according to the values obtained, which are presented in the following Table 3.

Table 3

Name of the "variable" resources contained within each group.

| Kind | Name of the Resources | Website |
|--------------|-----------------------|---|
| Applications | Babbel | https://www.babbel.com |
| | Busuu | www.busuu.com |
| | Duolingo | http://www.duolingo.com/ |
| | ESL Wonderland! | http://www.eslwonderland.com/ |
| | Wibbu English | https://www.wibbu.com |
| | Wlingua | www.wlingua.com |

| | | |
|------------|--|--|
| Databases | <p>Daedalus</p> <p>Directory of Open Access Journals (DOAJ)</p> <p>ELT Journal</p> <p>HOW</p> <p>JSTOR - Journal Storage</p> <p>Language</p> <p>Language Acquisition</p> <p>Natural Language & Linguistic Theory</p> <p>Phonology</p> <p>PROFILE. Issues in Teachers' Professional Development</p> <p>TESOL Quarterly</p> <p>The American Journal of Philology</p> <p>The American Journal of Philology</p> <p>The English Historical Review</p> <p>The English Journal</p> <p>The Internet TESL Journal</p> <p>El Libro Total</p> | <p>http://www.jstor.org/action/showPublication?journalCode=daedalus</p> <p>http://www.doaj.org</p> <p>http://eltj.oxfordjournals.org/</p> <p>http://asocopi.org/Publications.html</p> <p>http://www.jstor.org/</p> <p>http://www.jstor.org/action/showPublication?journalCode=language</p> <p>http://www.jstor.org/action/showPublication?journalCode=langacqu</p> <p>http://www.jstor.org/action/showPublication?journalCode=natulanglingtheo</p> <p>http://www.jstor.org/action/showPublication?journalCode=phonology</p> <p>http://www.revistas.unal.edu.co/index.php/profile/issue/archive</p> <p>http://www.jstor.org/action/showPublication?journalCode=tesolquarterly</p> <p>http://www.jstor.org/action/showPublication?journalCode=amerjphil</p> <p>http://www.jstor.org/action/showPublication?journalCode=amerjphil</p> <p>http://www.jstor.org/action/showPublication?journalCode=englhistrevi</p> <p>http://www.jstor.org/action/showPublication?journalCode=englishj</p> <p>http://iteslj.org/</p> <p>http://www.ellibrototal.com/ltotal/nuevo_inicio.jsp?c=1</p> |
| MOOC | <p>Alison</p> <p>Canvas Network</p> <p>Coursera</p> <p>EdX</p> <p>ESOL Courses</p> <p>FluentU</p> <p>FutureLearn</p> <p>GOOGLE Search Education Online</p> <p>MOOEC</p> <p>Open Learning</p> <p>Sakai</p> <p>Saylor</p> <p>Udemy</p> <p>World Education University</p> | <p>https://alison.com/</p> <p>https://www.canvas.net/</p> <p>https://www.coursera.org/</p> <p>https://www.edx.org</p> <p>http://www.esolcourses.com/</p> <p>https://www.fluentu.com/</p> <p>https://www.futurelearn.com</p> <p>http://www.powersearchingwithgoogle.com/</p> <p>https://mooec.com/courses/elementary-english-course</p> <p>https://www.openlearning.com/</p> <p>http://www.sakaiproject.org/</p> <p>https://www.saylor.org/</p> <p>https://www.udemy.com</p> <p>http://www.theweu.com/</p> |
| Multimedia | <p>English meeting</p> <p>LibriVox</p> | <p>http://www.englishmeeting.com/index.html</p> <p>http://librivox.org/</p> |

| | | |
|-------------------------|---|--|
| | Listening123 Lit2Go | http://www.123listening.com/ http://etc.usf.edu/lit2go/ |
| Digital Repositories | ABA English OpenRoads Pueblo Inglés RECIF-UFPR SEDL VOCABSUSHI Academic Earth Games to learn english Shared Talk TED - Ideas worth spreading Wiggio | www.abaenglish.com http://www.openroads.es https://www.puebloingles.com https://www.recif-ufpr.net/ http://www.sedl.org/pubs/free.html http://www.vocabsushi.com/ http://academicearth.org/ http://gamestolearnenglish.com/ http://www.sharedtalk.com/ http://www.ted.com/ http://wiggio.com/index.html?cid= |
| Video Youtube® Channels | CCCartoons (Youtube) CCPoems (Youtube) CCProse (Youtube) CCProseKids (Youtube) | http://www.youtube.com/user/CCCartoons http://www.youtube.com/user/CCPoems http://www.youtube.com/user/CCProse http://www.youtube.com/user/CCProseKids |

Source:self-made

It should be noted that, because it is a relatively short digital count because it contains 56 elements, it was given the task of reviewing each of them and comparing them with the bibliography studied.

Details that will also be made known in the theoretical part of this research corresponding to the following chapter on conclusions and final considerations.

5. Conclusions

Considering the theories: sociocultural, collective intelligence and situated learning, in addition to the perspectives and connections of digital and critical literacy, as well as the creation of the task of finding the main OER and MOOC available on the web through mining of data, we understand that the OER and MOOC are a tool that promotes various aspects of English learning and the construction of citizenship.

The OER and MOOC in their nature and even more with the proposal made in the present investigation of suggestions on the same, it is concluded that the OER and MOOC with relevant pedagogical tools to extrapolate the linguistic objectives, in order to also reach the social objectives in the teaching of English as a foreign language.

Also, to the extent that the development of communicative competence and digital literacy and criticism of the individual is worked in parallel, thus contributing to the formation of the citizen capable of reflecting on the global and local environment.

It is considered, therefore, that this work contributes to education in general and to teaching by means of an approach, hybridized by using the OER and MOOC as an alternative accompaniment and an important complement to traditional education. Thus, to the extent that a situated perspective adjusts to the teaching of languages, it will contribute to the inclusion of the student in the social and digital world.

Bibliographic references

Atkins, D. E., Brown, J. S., & Hammond, A. L. (2007). *A review of the open educational*

resources (OER) movement: Achievements, challenges, and new opportunities (pp. 1-84). Creative common.

Britos, J. D., Díaz, L. C., Morales, S., Vargas, L., Vignoli, A., Hirschfeld, G., & Presman, T. (2016). Los MOOC como propuesta para la estandarización de la calidad educativa. In *XI Congreso de Tecnología en Educación y Educación en Tecnología (TE&ET 2016)*, 614-621.

Cárdenas-Ramos, R. (2009). Tendencias globales y locales en la formación de docentes de lenguas extranjeras. *Íkala, revista de lenguaje y cultura*, 14(22), 71-106.

Cervera, M. G., & Cantabrana, J. L. L. (2015). Professional development in teacher digital competence and improving school quality from the teachers' perspective: a case study. *Journal of New Approaches in Educational Research*, 4(2), 115-122.

Chaves-Salas, A. L. (2001). Implicaciones educativas de la teoría sociocultural de Vigotsky. *Revista Educación*, 25(2), 59-65.

Colás, P., Rodríguez, M., & Jiménez, R. (2005). Evaluación de e-learning. Indicadores de calidad desde el enfoque sociocultural. *Teoría de la Educación. Educación y Cultura en la Sociedad de la Información*, 6(2).

Coll, C. (Ed.). (2008). *Psicología de la educación virtual: aprender y enseñar con las tecnologías de la información y la comunicación*. Ediciones Morata.

Coughlan, T., & Perryman, L. A. (2013). Beyond the ivory tower: a model for nurturing informal learning and development communities through open educational practices. *International Journal of Educational Technology in Higher Education*, 10(1), 312-326.

Díaz, F. (2003). Cognición situada y estrategias para el aprendizaje significativo. *Revista Electrónica de Investigación Educativa*, 5 (2). Document retrieved on June 2, 2017 from: <http://redie.ens.uabc.mx/vol5no2/contenido-arceo.html>

Fernández, K., Vallejo, A., & McAnally, L. (2015). Apropiación tecnológica: Una visión desde los modelos y las teorías que la explican. *Perspectiva Educacional, Formación de Profesores*, 54(2), 109-125.

Finardi, K. R., & Porcino, M. C. (2014). Tecnologia e metodologia no ensino de inglês: impactos da globalização e da internacionalização. *Ilha do Desterro*, (66), 239-283.

Garcia, J. D. S. B. L. (2016). Letramentos sociais: abordagens críticas do letramento no desenvolvimento, na etnografia e na educação. *Id on Line REVISTA DE PSICOLOGIA*, 10(30), 245-250.

González, F. & Vátimo, S. (2012). Collective and collaborative intelligence processes developed in the framework of web 2.0 technologies: concepts, issues and applications. *Anuario de Investigaciones*, vol.19, no.2, 273-281.

Katuu, S. (2012). Enterprise content management (ECM) implementation in South Africa. *Records Management Journal*, 22(1), 37-56.

Knobel, M. (2008). *Digital literacies: Concepts, policies and practices* (Vol. 30). Peter Lang.

Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, Culture & Society*, 33(2), 211-221.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge university press.

Lévy, P. (1999). A inteligência coletiva: por uma antropologia do ciberespaço. São Paulo: Loyola, 2003. *Cibercultura. Tradução de Carlos Irineu da Costa.*—São Paulo: Ed, 34.

Lévy P. (2009). *Toward a Self-referential Collective Intelligence: Some Philosophical Background of the IEML Research Program*, First International Conference, ICCCI 2009, Wroclaw (Poland) 10.2009. In N.N. Than, K. Ryszard & C. Shyi-Ming (ed.), *Computational Collective Intelligence, Semantic Web, Social Networks and Multi-agent Systems*, pp. 22-35. Springer: Berlin-Heidelberg-NY.

Lim, C. P., Ching, S. C., & Churchill, D. (2010). *Leading ICT in education practices: A capacity-building toolkit for teacher education institutions in the Asia-Pacific*. Microsoft

Partners-in-Learning (Asia-Pacific).

Martínez, M. Á., Fuentes, J. A., Freitas, M. D. C. D. & Zani, A. L. (2016). Los cursos online masivos abiertos–MOOC como estrategia de marketing en las universidades. *Etic@net, Revista científica electrónica de Educación y Comunicación en la Sociedad del Conocimiento*, 16(2), 349-370.

McAuley, A., Stewart, B., Siemens, G. & Cormier, D. (2010). Available from: http://www.edukwest.com/wp-content/uploads/2011/07/MOOC_Final.pdf

Mill, D. (2013). Escritos sobre educação: desafios e possibilidades para ensinar e aprender com as tecnologias emergentes. *São Paulo: Paulus*.

Riquelme Santos, J. C., Ruiz, R., & Gilbert, K. (2006). Minería de datos: Conceptos y tendencias. *Inteligencia artificial: Revista Iberoamericana de Inteligencia Artificial*, 10(29), 11-18.

Sagástegui, D. (2004). Una apuesta por la cultura: el aprendizaje situado. *Sinéctica, Revista Electrónica de Educación*, (24), 30-39.

Tobias-Martinez, M.A., Fuentes, J.A., Biagiotti, B. (2017). Tecnología de video: un modelo de acceso abierto basado en la calidad y colaboración Instituido en MOOC. *ReiDoCrea*, 6, 287-299.

UNESCO (2002). Forum on the impact of open courseware for higher education in developing countries.

Warschauer, M. (2004). Of digital divides and social multipliers: Combining language and technology for human development. *Information and communication technologies in the teaching and learning of foreign languages: State of the art, needs and perspectives* (pp. 46-52). Moscow: UNESCO Institute for Information Technologies in Education.

1. Federal University do Paraná (Brazil) and Carolina Foundation. migueltoobias@ufpr.br

2. Ph.D. in Faculty of Sciences of Education of the University of Granada (Spain). Assistant-Editor of the "Etic@net. Electronic Scientific Journal of Education and Communication in the Knowledge Society". fuentesese@ugr.es

Revista ESPACIOS. ISSN 0798 1015
Vol. 40 (Nº 19) Year 2019

[\[Index\]](#)

[In case you find any errors on this site, please send e-mail to [webmaster](#)]