

La alfabetización bilingüe de estudiantes de preescolar adoptando los principios de Montessori en clases de inglés a distancia

Pre-schoolers bilingual literacy adopting Montessori's principles in Remote English lessons

Alphabétisation bilingue des enfants d'âge préscolaire adoptant les principes de Montessori dans les cours d'anglais à distance

Andrea Bernal¹

Yury Tatiana Monsalve Gaviria²

Abstract

During the lockdown due to COVID-19, the traditional educational processes have moved to a remote environment, generating new challenges, and realities. This qualitative documentary research between a student and a professor who belong to students' a research seedbed called RELATE of the bachelor in English as a Foreign Language of Corporación Universitaria Minuto de Dios seeks to examine the implementation of Maria Montessori's principles in children's bilingual literacy before and during confinement caused by the pandemic. The articles reviewed were released in 2020 and 2021 in the data basis ProQuest and the peer-reviewed journals Childhood development journal, Early Childhood Research Quarterly, and Childhood development. The analysis was done on 50 articles to determine the development of children's bilingual literacy in remote learning environments and to what extent Montessori's principles could be identified. Findings show that the principles such

1 Teacher at Corporación Universitaria Minuto de Dios, holds a bachelor in Education with emphasis on Spanish and English, a master's in education, and is undertaking a Ph.D. on education. She has worked on educational research for 5 years and belongs to the research group Cibeles undefined. andrea.bernal@uniminuto.edu

2 Bachelor student in a foreign language training from the Corporación Universitaria Minuto de Dios. She is a technician by Competence in Children Pedagogy from Discenter's Institute. She is interested in the research seedbed called RELATE which belong to the B.A program. Her main topics of interest are those related to early childhood English education, including the most vulnerable populations. ymonsalveg1@uniminuto.edu.co

as freedom and a child-friendly creative and resourceful environment of Maria Montessori's theory are applied in some of the articles and some teaching practices actually foster children's bilingual literacy before and during COVID 19 pandemic.

Keywords: Bilingualism, preschool literacy, Montessori method, bilingual education, remote learning.

Résumé

Pendant le confinement dû à COVID-19, les processus éducatifs traditionnels se sont déplacés vers un environnement éloigné, générant de nouveaux défis et réalités. Cette recherche documentaire qualitative entre un étudiant et un professeur appartenant à une pépinière de recherche des étudiants appelée RELATE du baccalauréat en anglais comme langue étrangère de Corporación Universitaria Minuto de Dios cherche à examiner la mise en œuvre des principes de Maria Montessori dans l'alphabétisation bilingue des enfants avant et pendant le confinement causé par la pandémie. Les articles examinés ont été publiés en 2020 et 2021 dans la base de données ProQuest et les revues à comité de lecture Childhood development journal, Early Childhood Research Quarterly et Childhood development. L'analyse a été effectuée sur 50 articles pour déterminer le développement de l'alphabétisation bilingue des enfants dans des environnements d'apprentissage à distance et dans quelle mesure les principes de Montessori pouvaient être identifiés. Les résultats montrent que les principes tels que la liberté et un environnement créatif et ingénieux adapté aux enfants de la théorie de Maria Montessori sont appliqués dans certains des articles et que certaines pratiques d'enseignement favorisent en fait l'alphabétisation bilingue des enfants avant et pendant la pandémie de COVID-19.

Mots clés: Bilinguisme, alphabétisation préscolaire, méthode Montessori, éducation bilingue, apprentissage à distance.

Resumen

Durante el confinamiento por COVID-19, los procesos educativos tradicionales se han trasladado a un entorno remoto, generando nuevos desafíos y realidades. Esta investigación documental cualitativa entre un estudiante y un profesor pertenecientes al semillero de investigación de los estudiantes llamado RELATE de la Licenciatura en Inglés como Lengua Extranjera de la Corporación Universitaria Minuto de Dios, busca examinar la implementación de los principios de María Montessori en la alfabetización bilingüe de los niños durante el confinamiento causado por la pandemia. Los artículos

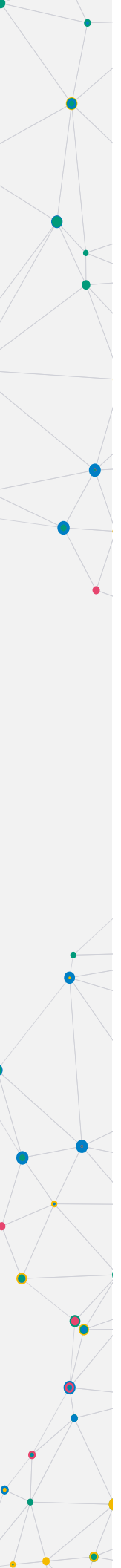
revisados se publicaron en 2020 y 2021 en la base de datos ProQuest y las revistas indexadas Childhood development journal, Early Childhood Research Quarterly y Childhood development. El análisis se realizó en 50 artículos para determinar el desarrollo de la alfabetización bilingüe de los niños en entornos de aprendizaje remoto y hasta qué punto se podían identificar los principios de Montessori. Los resultados muestran que los principios como la libertad y un entorno creativo e ingenioso amigable para los niños de la teoría de María Montessori se aplican en algunos de los artículos y algunas prácticas de enseñanza fomentan la alfabetización bilingüe de los niños antes y durante la pandemia de COVID 19.

Palabras clave: Bilingüismo, alfabetización preescolar, método Montessori, educación bilingüe y aprendizaje remoto.

Introduction

During the last year, pre-school education faced a very big challenge related to the transfer of classroom teaching and learning dynamics to remote environments. This new reality affected millions of children's right to education. There have been many challenges, but also there have been many rewarding experiences in the adaptation of teaching children in remote learning environments. This process represents an opportunity that may improve and definitely innovate learning conditions and also make visible successful teaching experiences. Some teachers have already adapted some tools to continue working on a regular basis; for example, educational platforms, digital books, and learning webs with free access. Others had to look for training opportunities or develop empirical knowledge during their teaching practice to generate well illustrated and clear guides to bring the school closer to the children. All in all, both teachers and children have adopted the reality of taking part in remote learning dynamics.

On the other end of the spectrum, some children had the opportunity to have access to the internet and technological equipment to connect to the classes, either through their cell phones, tablets, or computers, and some were not so fortunate to have those resources. This claim is supported in governmental statistics. In fact, the Departamento Administrativo Nacional de Estadística -DANE- published the percentages of internet use at the regional level in Colombia, children older than five years from three of the five regions have the lowest statistics of internet use in places such as the Atlantic, Orinoquia and the Amazon (cited in Tiriati Tovar, 2020). Also, according to Angel Perez Martinez cited by the newspaper El espectador (April 13th, 2021), five million state school students don't have internet connection or computers at



home. In Colombia, every day the news presented us with cases of children who walked for kilometers to have access to the internet signal and a computer which oftentimes they had to share. Others didn't even have electricity utilities. These are examples of real scenarios that many children face to be part of remote learning environments in Colombia during the pandemic.

Teachers have learned from remote learning and this experience has been different for state teachers and private school teachers. In general terms, teachers have the direct experience of moving from a physical classroom to a remote classroom. This means, they had to change usual teaching tools like chalks, markers, erasers and boards and had to start delivering lessons through computer screens projecting PowerPoint slides, Word formats, and learning webs. Many teachers developed their classes synchronously, but in the rural areas many others assigned paper worksheets that parents had to pick up (El Espectador, April 13th, 2021). Many teachers interviewed by the newspaper state there is a gap between the resources, lesson delivery and results reached by students in the state schools and the ones from the private ones.

In the teaching field, many teachers share different testimonies and, of which their experiences are divided, some assume it as a challenge but not a difficult task. Others yearn for on-site lessons since they claim remote teaching is not the same as the former. Teaching English to preschoolers in remote sites generated great challenges. Teachers must think about catching their attention, keeping them motivated to participate in online lessons, and making them feel at ease. If we consider the crucial role that preschool education fulfills in the educational process of every child, we could acknowledge that they discover the world of letters and numbers in this stage. They go through different developmental stages that make them become more independent beings. In other words, people who like to explore the world. For all these reasons, remote sites for teaching and learning at a preschool level urged educator to search for new strategies to continue such meaningful educational processes.

In this scenario, we defined our research problem as the need to know how to develop children's bilingual literacy and performance in remote digital learning environments based on the revision of articles published during 2020-2021 about preschool bilingual education and the analysis of the principles of Maria Montessori identified in the articles selected.

This reflective paper focuses on ongoing results of the documentary research described before and it is relevant for researchers, teachers, parents, preschoolers and the community. The main findings presented are the identification of Montessori's principles applied in characteristics of the classrooms, the teachers and the use of

resources. These results are relevant for many audiences. Educators interested in developing children's bilingual literacy based on Maria Montessori's theory in or out of remote learning settings can identify some of such principles in this paper. Teachers, educators, parents and all the community involved in preschoolers' learning process can identify principles, tools, and practices that they can replicate or adapt to their teaching or learning practices to benefit a child's development of bilingual literacy. In the next lines, the research problem is described in detail.

Research Problem

The research problem identified is the need to understand how teachers can develop children's bilingual literacy in remote digital learning environments. In the situation previously described, we decided to interview English teachers and preschool teachers who work in a bilingual kindergarten in Boyacá. They stated that neither they nor the children were ready to take part in a remote learning environment, but they managed to adapt and continue developing children's bilingual literacy with the limitations of adopting these new learning conditions. One teacher explained it was difficult to have control of a class through a computer screen despite the fact that they can see the children, since they felt they could not lead other dynamics different from working facing a computer screen. Another teacher said she spent much time exploring new strategies, entertaining material, different PowerPoint templates, and images to develop English classes. Also, they have started to adapt digital materials like videos found on YouTube. As a result of these efforts and despite the shortcomings of remote learning, they noticed children continue attending lessons and producing some of the expected learning outcomes. Reflecting upon this situation, we identified teachers need to know diverse teaching and learning possibilities to foster children's bilingual literacy in digital environments.

Children's bilingual literacy is developed by both English teachers and preschool teachers in a bilingual kindergarten in Boyacá; however, we noticed the need to articulate more both fields of knowledge in the teaching practices. On the one hand, some preschool teachers recognized they may not have certain strategies to teach English and on the other hand, English teachers may need to understand more the developmental stages and performance needs of preschoolers to plan lessons and learning goals accordingly. This situation may affect the process of reaching children's bilingual literacy. For some preschool teachers there is the need to apply more teaching practices in digital environments that lead to children's acquisition of English as a foreign language, and for some English teachers, there is an interest in adapting

bilingual teaching practices to the development needs of preschoolers in virtual learning environments.

This research focuses on the analysis of articles about teaching practices that aim at fostering children's bilingual literacy in remote learning environments and where we identified the implementation of the Principles of Maria Montessori. This way, we may identify teaching practices that articulate both the characteristics of teaching preschoolers, as they implemented Montessori's principles, and the practices that lead to children's bilingual literacy to respond to the needs identified in the research problem. According to the aforementioned, we developed a documentary revision that allowed us to identify diverse teaching practices guided by the following research question: To what extent the principles of Maria Montessori's theory about children's literacy have been applied in the development of children's bilingual literacy in remote learning environments? In order to understand children's bilingual literacy, we reviewed the following theoretical principles.

Theoretical Framework

Critical Stage

Children have more ability to acquire languages than adults. Bickerton (2001) cited by Cruttenden (2019) asserts this is a sign of a biological condition or limited opportunity in time to develop. This limited time is known as "*the critical stage*." The biological characteristics can be summarized in three points. Firstly, the critical stage relates to very specific activities and behaviors that can be acquired. Secondly, the duration is limited to a definite time and with a termination foreseeable and thirdly beyond the stage, the desired behavior is not acquired (Lorenz cited by Garcia and Garcia, 2003: 5)

Learning English includes not only the phonetics of a language but also the grammar, syntax, intonation, etc. However, Kuhl (1994) suggests learning a phonetic system is more age-sensitive than learning grammar. Therefore, the critical stage is very important in terms of pronunciation. Language acquisition depends on the plasticity of the two hemispheres of the brain. He further suggested if the acquisition has not occurred when the boy reaches puberty, he will never achieve full command of the language. Garcia and Garcia (2003) speak of three implications for students of a second language starting after a critical stage: the student cannot reach a native speaker level, learning requires higher effort than it takes during the critical stage, and

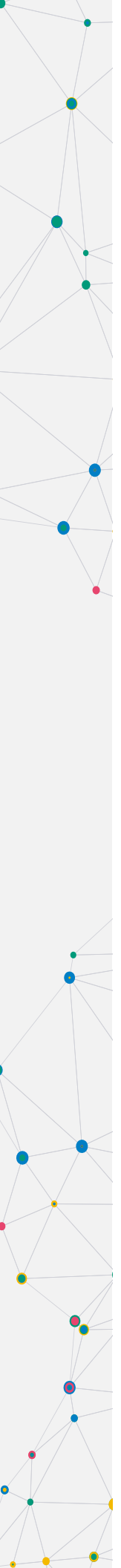
the student cannot use the same mechanisms that he had used while he was learning his mother tongue.

Doughty, C and Long, M (2003) quote VanPatten (2002) who defines input in learning processes as contextualized language that is part of a message with a clear meaning. Gass and Selinker (2008) point out that the quality of the input is the main fact in the acquisition of the second language. Within the critical stage, the brain performs '*fast mapping*' and can find out the syntactic structure. Dulay and Burt (cited by Gass and Selinker, 2008) argue we have innate mechanisms that allow us to create hypotheses about the language system and then solve the problems of spoken structures that do not match what is heard. Dulay and Burt call this process "creative construction": The construction of the language occurs gradually, in such a way that children synchronize the language heard with the one they are producing, using their own and innate instrument, which leads them to formulate hypotheses about their learning until it has its adjustment and the language is produced correctly. (Dulay and Burt cited by Gass and Selinker, 2008: 127). If the language is not acquired at the critical stage, but is learned as a second language in school or later in adulthood, learners likely need "grammar rules" to learn effectively. In this way, the student uses his cognitive abilities to process the rules and then forms the structures of the second language. This is the big difference between learning a language and an acquired language.

Fillmore (1996) suggests bilingual children can be very communicative and sociable. He states the need to communicate in one or the other language is a good motivation. Although the needs are very different for adults, a bilingual child will learn more quickly what he needs to communicate. Fillmore proposes a model for creating a thriving environment for teaching communicative and social skills. Consequently, a learner is more motivated if he has the requirement to communicate in the desired language, the opportunity to communicate, and interact with native speakers, and an environment that generates those opportunities to happen frequently (p. 52-53). He also argues that children's bilingual literacy development depends on social, linguistic and cognitive processes; social refer to interaction with others; In the linguistic, reference is made to the way in which the speaker of the desired language can change the language chosen to address the learner to better understand what is socialized and finally, in the cognitive, they consider processes in which knowledge is acquired in this case related to the language.

Children bilingual literacy

According to Cameron (2001), literacy is the ability to learn, write, and read different kinds of texts within different purposes. Literacy is part of people's lives, both adults



and children and it is not a task that only has its stage in school but also in homes, and on the street, since written texts are found everywhere. Written texts are no longer just paper books, but the modern era allows us to have digital forms. Children from early childhood are immersed in the literacy process; for example, when they learn to write their names or participate in the reading of a story. Teachers can take advantage of these conditions to start and enhance children's bilingual literacy.

Learners who are learning to read in a second or foreign language explore different dimensions and components of language. To give meaning to a text, skilled readers use a combination of visual, phonological, and semantic information, taken from the letters, words, and sentences of the text. Readers build up an understanding of the text as they go along, sometimes called a “*text base*.” (Van Dijk and Kintsch 1983; Kintsch 1988). Also, reading comprehension entails analyzing different components or scales of the language. In order to comprehend, the reader relates morphemes, words, letters, syllables, sentences in a paragraph, or textual contexts (Van Dijk and Kintsch 1983; Kintsch 1988). That is, the reader focuses his gaze on the text at different points according to the information which suggests his interest the most and depending on his cognitive capacities. In order to understand a text, all scales must be integrated, that is, from individual letters to the complete discussion of the text. The children who learn English need to develop abilities and knowledge in each scale. Children need to progress in every scale or level, and they need to practice the integration through the levels. As teachers, we can plan reading strategies and material that bear in mind this scaffolding.

In the process of bilingual literacy, the brain tries to associate the first language with the second and teachers can use strategies to cope with patterns that do not match among languages. In the case of children whose first language is Spanish and are learning English, both languages have the same graphemes, but phonemes and some consonant combinations change. In that case, a comprehension strategy is repeating several times the pronunciation of words or ideas. This helps to accelerate the process of learning an aspect of the word which is part of the reading ability. In regards to the meaning of words, in the early stages, children can comprehend new vocabulary, when teachers explain the meanings or they could be inferred from the textual or graphic context. Other processes happen in the writing process. For these reasons, as teachers we should be mindful of the importance of L1 and the strategies we can use for developing children's comprehension of new vocabulary as part of their initial reading and writing ability.

Reading and writing can be complex activities for 6-10 years old. They may not be able to transfer even the most general concepts about a text and printed reading if they

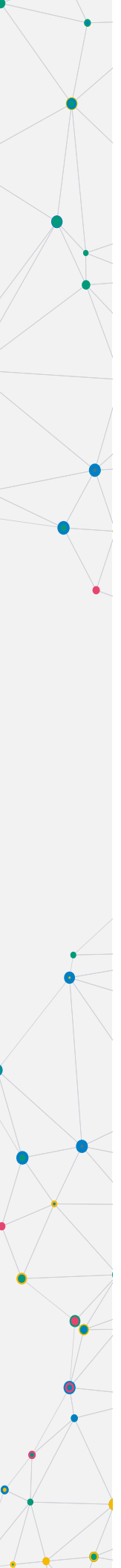
don't have some basis. (Milan, T & Basurto, N. 2019). Children are still developing fine motor skills that will allow them to form letters, join words, which means that producing a sentence will take more time, even children's attention and memory periods are also limited by what they remember. Children begin to learn a language through oral skills, then pre-reading and writing which begins at a very simple level by identifying single words and their name in simple sentences. To teach a 6-year-old to write, teachers can use the teaching methods used by children whose first language is English so that by the time children reach 10 they can understand how texts work, think and speak about the differences between languages. (Milan, T & Basurto, N. 2019). Early English literacy activities give children the opportunity to see, hear, manipulate, touch, and feel. The idea is to establish a relationship between the process of creating meaning, sensory exploration and the expression of ideas, generating a close relationship that involves a total of the senses, that inspires and is motivational to achieve synchronization with learning.

Research design

This research deals with a qualitative approach (Creswell, 2012) because it aims at analyzing children's bilingual literacy through the identification of teaching practices that have characteristics of Montessori's method. This paper reports ongoing results of a documentary research about children's bilingual literacy through the principles of Maria Montessori. Documentary research is defined as the "systematic, methodical and organized study of documents" (Uribe in Paramo, 2016, p, 198). Consequently, we did a methodic revision and analysis of articles to identify the teaching practices that articulate both children's bilingual literacy and the principles of Maria Montessori in remote learning environments. We selected articles about the development of children's bilingual literacy, preschool bilingual education, and Montessori's method published in peer-reviewed journals. These criteria allowed us to guarantee the principles of credibility, representativeness, authenticity and meaning in the documents (Ahmed, 2010).

Data collection instruments and analysis

As in the initial search on the data basis, we selected forty-six articles that included in their abstracts and titles the key words of this study. We decided to create a matrix to characterize the main features of the articles. The matrix was validated by an external research expert. This matrix helped us write referencing information about the articles such as the data basis where we found them, their title, kind of publication, main



constructs developed in relation with our research and a final concept that depended on the analysis of each article's textual structure and content.

To classify the articles depending on their textual structure, we used two checklists to determine whether articles selected reported quantitative, qualitative or mixed research studies. These checklists were taken from Efron and Ravid (2018). Using checklists allowed us to reach the first specific objective, which is to identify peer-reviewed research articles published during 2020 about children's bilingual literacy and preschool bilingual education.

We found that all the articles that reported results of research were about developing children's bilingual literacy and the articles that focused on pre-school education during COVID 19 sanitary crises had other textual typology. They were mainly reflections, essays or notes of the editor, so we decided to add articles with this typology since they provided relevant information about the teaching and learning conditions of bilingual preschoolers during the lockdown, and that was one of our research objectives.

To analyze to what extent the content of the articles selected was relevant to answer our research question we used analytical note taking index cards or as ANTICS as they are called by Efron and Ravid (2018) because of their letter initials. This instrument is a document with a form where the reader identifies key issues or concepts described in the articles, analyzes them, and writes a personal comment about them. This instrument helped us research the second specific objective consisting in analyzing the most relevant peer reviewed articles about children's bilingual literacy and preschool bilingual education in remote learning environments. The form was taken from Efron and Ravid (2018).

To find relationships among the content of all the articles we used a graphic organizer called thematic concentric circles. The circles allowed us to determine aspects of children's bilingual literacy development in the teaching practices described in the articles released in 2020. The form was taken from Efron and Ravid (2018).

To identify Montessori's principles and relate them to the articles about children's bilingual literacy in remote learning environments, we created a matrix with categories and codes about Montessori's method. We also design it to keep a record of the emerging codes based on the articles about Montessori's method to determine its main characteristics. In the analysis of articles about children's bilingual literacy in remote

learning environments, we identified teaching practices that may apply the principles of the Montessori method or that could be closely related to such principles.

Qualitative data analysis was developed based on a hermeneutical approach (Gadamer, 1982 as cited by Efron and Ravid, 2018). Firstly, there was a scanning process to identify the articles that suited the general research criteria, then there was a process of skimming, analyzing, interpreting, emerging coding and a priori coding where we labelled meaningful fragments related with the constructs of bilingual children's education and Montessori's method. Finally, codes were organized in thematic concentric circles to make their relations explicit and build up a new interpretation.

Findings

Montessori's principles applied to teaching preschool students.

Maria Montessori is a tenet reference for early childhood education since her work focuses on preschool children and has current relevance. Her educational methods are based on allowing children to be free, to interact with the environment, to be independent from their parents, which allows them to express themselves more freely, to be themselves (Ghaffari, Kashkouli, & Sadighi, 2017; Labrador, 1998). There have been studies that articulate Montessori's method in the process of children bilingual literacy (Jian, & Pane, 2020; Ghaffari, Kashkouli, & Sadighi, 2017; Faryadi, 2009; Akhsanova, & Salyakhova, 2016). As an example, Akhsanova and Salyakhova (2016) included the educational methods of Maria Montessori for teaching English in Russia. They showed that individual and group work allowed learners to work in free spaces and have choices which are principles of the Montessori method. Furthermore, preschoolers increased their motivation and communication skills in English classes. Montessori's protocols are based on children's nature of exploration, freedom, and thinking skills which has generated learning gains. This implies that if English teachers adapt their teaching practices (usually focused on teenagers or adult learners) incorporating Montessori's principles, they can respond to children's needs and the impact of this decision has proven to be children's progress towards their bilingual literacy.

Figure 1 highlights the fundamental categories and codes inferred based on the analysis of articles about Maria Montessori's method applied to the field of English teaching (Jian, & Pane, 2020; Ghaffari, Kashkouli, & Sadighi, 2017; Faryadi, 2009; Akhsanova, & Salyakhova, 2016; Cardinal, & Chiappe, 2016; Bonilla, 2019; Díaz-Bajo 2019; López, , & Blanco, 2020). Maria Montessori places children as the protagonist, as unique, free, and independent beings in the development of their learning experience.

The school classrooms are special, with creative colorful materials and diverse choices. The learning environment shouldn't have the intervention of adults. Teachers are supervisors, guarantors, and motivators of the process. To respond to learners' needs, teachers can resort to extra methods to complement and enrich children's learning.

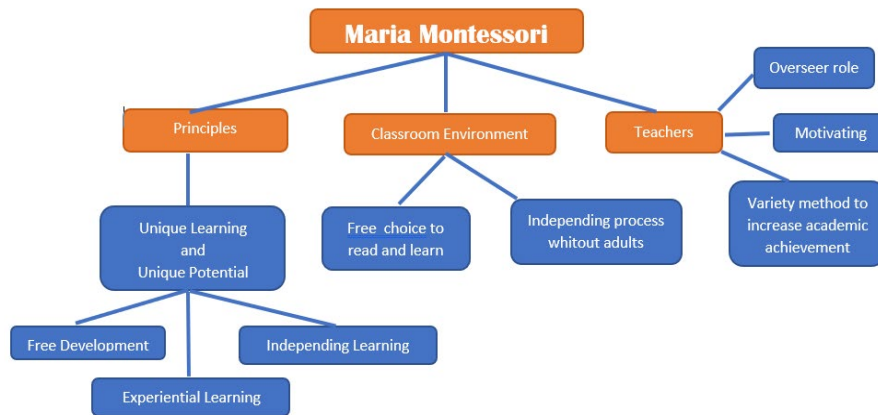


Figure 1. Fundamental principles found in the analysis of articles about Maria Montessori method (Jian, & Pane, 2020; Ghaffari, Kashkouli, & Sadighi, 2017; Faryadi, 2009; Akhsanova, & Shlyakhova, 2016; Cardinal, & Chiappe, 2016; Bonilla, 2019; Díaz-Bajo 2019; López, , & Blanco, 2020). Own creation.

Unique Potentials Learner in a Free Development

The pedagogical proposal of Maria Montessori has as one of its main principles providing children opportunities and independence. According to a series of articles analyzed in the development of this documentary research (Akhsanova, Salyakhova, 2016; Faryadi, 2019; Pane, Jian (2020), we found that Montessori's educational proposal aims to allow children to have a free development. This means, the learning environments are specially prepared for children so they can explore, develop, and grow increasing learning. The role of teachers in the process is to give freedom for learners to explore. The combination of a prepared environment for exploration and the flexibility to scout it contributes to the development of their personal qualities, increases the level of learning motivation and satisfies the educational interests of children (Akhsanova, Salyakhova, 2016). All in all, the pleasant environment in their in-situ classes, remote digital sessions, and homes motivates children to be part of their educational process and may bring about bilingual literacy.

The Montessori Method can have an effect on children's communication skills. This happens because children are the protagonist of free, active, diverse, and motivating learning environments and dynamics that motivate them to speak. By the same token, this approach to learning achieves quality in their personal development. When a child

feels pleased in a space, they feel more confident, which allows them to perform better in communication skills and supports them to improve and expand their vision of the world. A suitable and appropriate environment stimulates children's learning and performance.

Experiential learning with free choice of reading and learning plan.

The Montessori Method also suggests that students should have the opportunity to choose their own reading and learning material (Ghaffari, Kashkouli, Sadighi, 2017). As mentioned earlier in the article, students develop their activities in free environments, this includes freeing children from the pressure of adults when directing activities. This entails, the class needs to have a prepared environment organized according to a theme, with materials within the reach of children. In doing so, children are motivated to study - they learn based on their interests exclusively (Akhsanova, Shlyakhova, 2016). The setting should also have wide spaces, free of obstacles, with small furniture. This in turns, allows them free choice of objects they wish to work, and they feel at ease. Montessori students can learn on their own through critical interaction with the material that is scaffold from basic to advance thinking skills (Ghaffari, Kashkouli, Sadighi, 2017). She suggests that preschool teachers promote the construction of independence by allowing learning surrounded by these preplanned challenging resourceful environments prepared for free transit and exploration. In remote learning environments, these principles might be applied by setting virtual session dynamics, platforms, materials, and layouts where teachers deliver the classes and requesting or guiding parents to set a motivating learning ambiance at home. Also, the activities done in virtual, remote synchronous sessions should be contextualized, diverse and planned to take children from simple to more complex thinking and expression outcomes through the diverse learning experiences.

Discovering the main characteristics of the articles about children's bilingual literacy and its development during COVID 19

To identify teaching practices that aimed at guiding children in the process of becoming bilingual, we selected, reviewed, and analyzed peer-reviewed articles released in 2020 in Proquest database and the peer-reviewed journals Childhood development journal, Early Childhood Research Quarterly, and Childhood development. The searching criteria were the key words, children's bilingual literacy and preschool bilingual education. 46 open-source articles were downloaded and after using the checklist to assess research articles taken from Efron and Ravid (2018), 24 articles were

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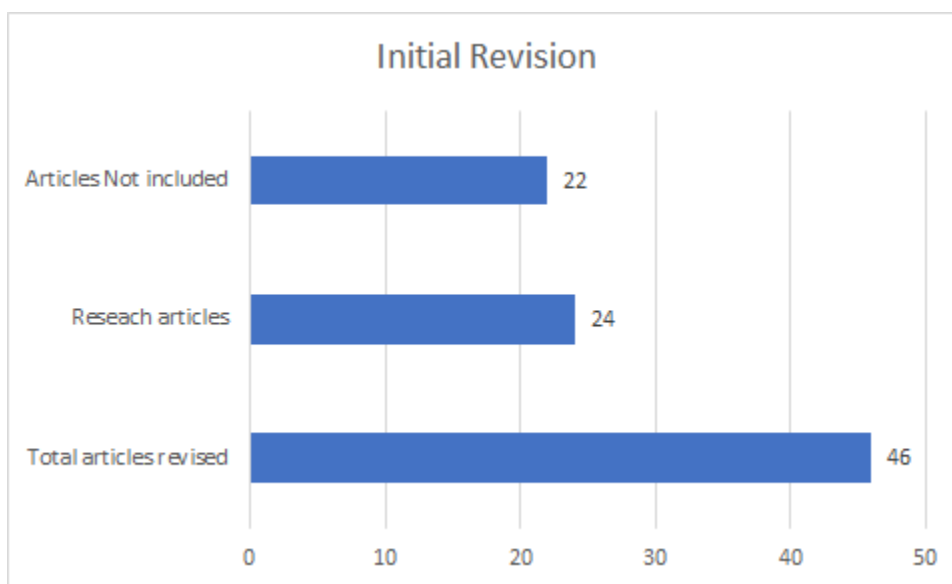


Figure 2. Results of the initial revision. Own creation.

Unfortunately, in this initial revision, none of the research articles was about the development of children's bilingual literacy during COVID-19. Therefore, a second revision was done to include other typologies of articles that provided information about children's bilingual literacy development during COVID-19. As a result of this, figure 3 shows that we selected 8 articles that read about children's learning English during COVID 19 in 2020 and 19 articles that reported results of empirical research.

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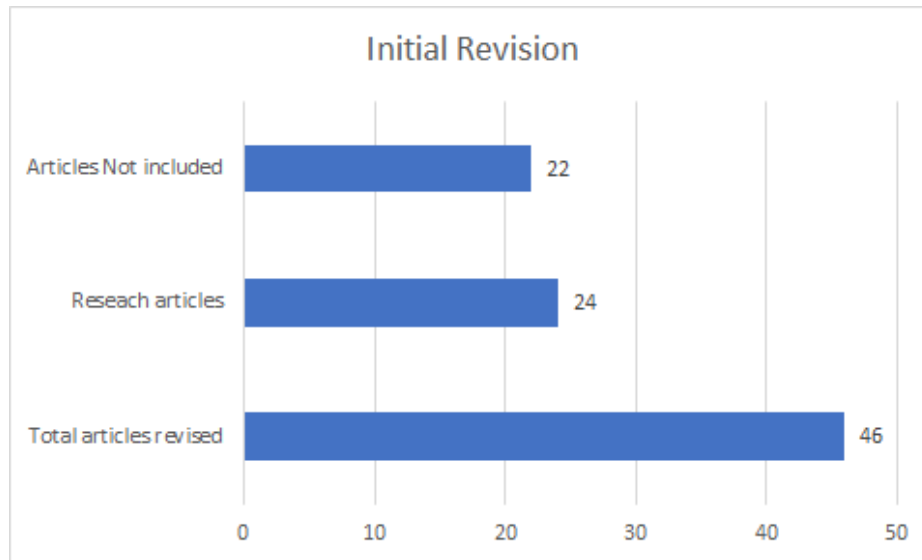


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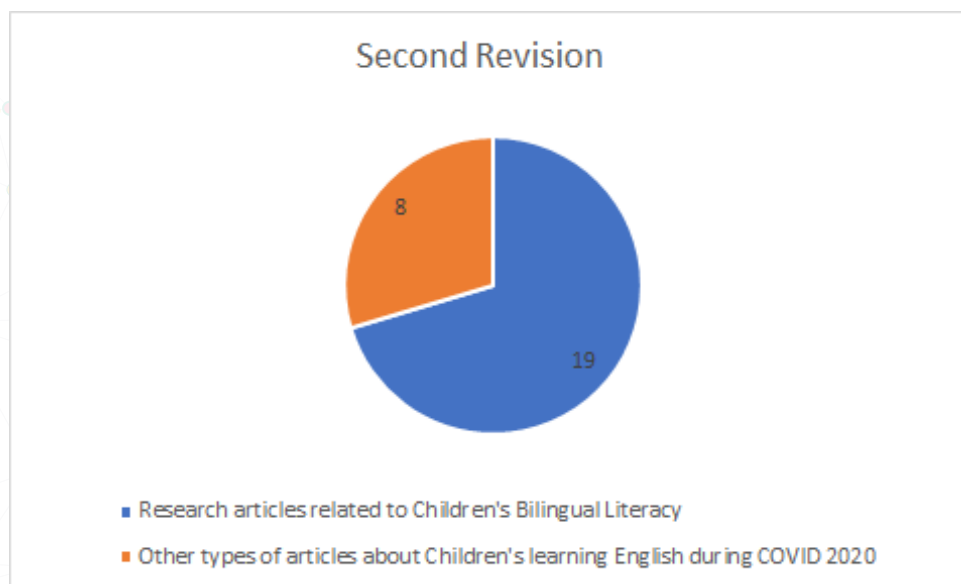


Figure 3 Results of the second revision

Using the same sample of articles, a scanning process was done to identify the topic of the articles and their main structural characteristics. We found 19 articles were about children's bilingual literacy development and 8 about the same topic during COVID 19, but they were not articling about empirical research. Instead, the 8 articles were mainly noting to the editors or reflection papers. The following results show the reflection about the content of the articles.

Pre-schoolers bilingual literacy, teaching and learning practices during 2020

We included eight articles published during 2020 and 2021 with the intention of discovering how bilingual literacy could have been promoted during the confinement (Ferdig, Baumgartner, Hartshorne, Kaplan-Rakowski, and Mouza 2020; Khamsuk and Whanchit 2021; Kolak, Norgate, Monaghan, and Taylor 2020; Carrillo, and Flores 2020; Rivera Pérez, Hart, and Lund 2020; Nikolayev, Reich, Muskat, Tadjbakhsh, and Callaghan, 2020; Wright, Einhorn, Labin, Perez, DiSalvo, and Truglio, 2021; Baoqi, Loh, O'Brien, and Silver. E. n.d.) we found that some researchers had done projects in remote learning environments during previous years and published last year. Also, other articles were reflections or notes to the editors about the effect of COVID 19 confinement.

In regards to preschoolers' bilingual literacy, we found a variety of topics. We found an article about developing children's reading literacy (Khamsuk and Whanchit 2021) and another about the increase of children's bilingual leisure reading for enjoyment during COVID 19 (Baoqi, Loh, O'Brien, and Silver, n.d.). An analysis of vocabulary learning clues identified in children bilingual TV programs (Rivera Pérez, Hart, and Lund 2020). Authors stated characteristics such as applying game-based learning and routines in Sesame Streetworkshop (Wright, Einhorn, Labin, Perez, DiSalvo, and Truglio, 2021), and the relation between feedback provided by games and children's learning process (Nikolayev, Reich, Muskat, Tadjbakhsh, & Callaghan, 2020). Finally, there was an article about assessing the learning potential of preschoolers' apps (Kolak, Norgate, Monaghan, & Taylor, 2020).

In the following section, we present the findings of the analysis of the previous articles. We mainly focused on the following three categories: firstly, bilingual literacy, secondly, assessment of learning apps and their potential to enhance bilingual literacy,

and thirdly, bilingual literacy and the digital divide. We also stated and explained principles of Montessori's method in those articles.

Bilingual literacy development through storytelling

Khamsuk & Whanchit, (2021) fostered children's bilingual literacy by designing bilingual tales that both teachers and parents read to children in class or in non-school hours. Teachers read short stories written in children's foreign language that included a few words in English, then ask children some reading comprehension questions. They could read the same story twice or three times. At home parents repeated the same reading and procedure. In the reading comprehension tasks, children had to relate the words in English with images that represented their meaning. For instance, children could remember simple words such as moon and sun that were part of the context of a story. This mixed research contrasted results before and after children received this reading training, and proved children have increased their capacity to remember the words in English presented in the stories. The authors state that storytelling promotes English vocabulary learning in preschoolers in and out of class and it could be done using adapted material that has a mix of both children's L1 and few words in L2. Nonetheless, parents should be guided in the process and have the necessary reading material.

Storytelling should generate children's sensorial exploration. It means, reading should be an active activity where children use their senses as part of their active interaction with the content of the text. For example, if a story says the protagonist smells the flowers, then children should be encouraged to act out the action of smelling. Both teachers and parents are responsible for inviting children to discover the world of reading and exploring books through sensorial experiences. Montessori's principle of creativity matches this view of reading because this approach to reading promotes the exploration of the senses as a means of checking comprehension and motivating learners.

Storytelling is an activity many parents do with their children and it can be done in the bilingual classroom as well, but this activity should have specific procedures to develop children's bilingual literacy. Actually, storytelling bilingual stories may initially be done at home. However, in Khamsuk and Whanchi's study (2021) preschoolers were introduced to mono-syllabic concrete words and only up to three words in each story. Also, both teachers and parents read the same story three times, one after the other, and asked comprehension questions. Additionally, the researchers designed and adapted the material so that most part of the stories was in children's native language

and only three monosyllabic content words were introduced in parts of the story. Preschool teachers and parents must be aware of the multiple possibilities we have to help children in their bilingual literacy process.

Khamsuk & Whanchit's study (2021) was chosen because it has results of children's increased bilingual literacy and principles of Montessori's method. The International Montessori Society (IMS) listed 20 protocols cited in Ghaffari, Kashkouli, y Sadighi, (2017). We identified the following Montessori protocols in Khamsuk & Whanchit's study (2021). First, the researchers promoted children's interest by involving them actively in the sensory reading process; for instance, by asking them questions and having them look at the images. Second, the reading comprehension activities should focus on the main points of the story, simplifying the complexity of the activity which is another Montessori protocol. Finally, another protocol is establishing and keeping the same routines which was implemented in Khamsuk & Whanchit's study (2021) study as they set the same reading routine that consisted in reading the same story three times in a sequence and then asking reading comprehension questions to check children's understanding of the meaning of the words in English.

Other characteristics of Montessori's theory identified in Khamsuk & Whanchit's study (2021) are the role of the teacher and the effectiveness of the method. In Montessori's theory, teachers' role should be active when they teach children from 0 to 9 years since they should show children how to do the activities and use the material (Ghaffari, Kashkouli, y Sadighi, 2017). Kahmsuk and Whanchit stated that teachers and parents read the stories to children and guided their responses to the reading checks. Finally, children exposed to Montessori's principles may learn to read before age 6 (Edwards, 2002) cited in Ghaffari, Kashkouli, y Sadighi, (2017) and actually children in the storytelling study increased their reading bilingual literacy.

Bilingual vocabulary and reading literacy development during COVID 19

Bilingual children can understand and use more words in a second language by their exposure and guidance to bilingual TV (Rivera Pérez, Hart, & Lund, (2020) with some principles of Montessori's method. Researchers found that there are bilingual TV programs that have implicit and explicit vocabulary learning clues that may benefit children's learning. Some of the explicit clues are translation of the words present first in L1 and then in L2 to support scaffolding of meaning based on children's knowledge of L1 and providing a simple definition of the word so that the learner infers the meaning. Implicit clues include fostering the association of a new word with

its visual representation and repetition of the words presented in diverse examples. Visual illustration fosters semantic processes and meaningful repetitions enhanced pronunciation learning. In both explicit and implicit clues provided in bilingual TV programs, we identified two principles of Montessori Method such as promoting inferential thinking and making simple complex processes as well as using colorful attention-getting material to catch children's interest.

Bilingual children felt joy when reading bilingual books preferably in paper format during COVID 19. In Baoqi, Loh, O'Brien, and Silver, (n.d.) mixed research, they studied a population of Asian bilingual children and found that in general terms, and all children reported they liked reading and preferred using paper books since most of them related digital tools to entertainment. Whereas reading books was perceived as an activity that allowed them to feel out of the usual habit of taking remote learning sessions or doing assignments on a computer screen. We inferred that the Montessori's principles identified in this study are promoting children's well-being, enjoyment and learning materials that suit their needs.

Assessment of learning apps and their potential to enhance bilingual literacy.

Kolak, Norgate, Monaghan, Taylor (2020) created a tool to assess the quality of learning apps mainly designed for children between 2 to 5 years. Their findings show that the most relevant aspects evaluated by expert educators and designers about the quality of learning apps are whether their design is suitable for children and the quality of the language used. Nonetheless, they concluded that learning apps can have a high value in their design, but a low educational effect since they failed to foster cognitive skills and social interaction. One of Montessori's principles is that learning material should be carefully designed and chosen to foster inductive and deductive learning which the learning apps assessed lacked. This principle served as another argument to have a critical stand when promoting learning apps that children can use to learn English.

Children's bilingual literacy and the digital divide

Recognizing practices that promoted children's bilingual literacy in remote learning environments was the main factor that motivated this research; however, responding to children's bilingual literacy needs in a context with a digital divide was also part of the problem investigated. In summary, the remote learning practices reviewed foster bilingual vocabulary, reading and pronunciation literacy by means of materials that

do not necessarily require technological mediation. For instance, vocabulary literacy by storytelling was promoted through the adaptation of stories with bilingual features, vocabulary learning may take place with the selection of bilingual TV programs with learning cues. Furthermore, leisure reading is associated with reading paper books in English. These practices are examples that Colombian teachers can adapt in their remote learning teaching practices directed to children to enhance their bilingual literacy. Practices that are not affected by the reality of the existing digital divide among Colombian regions.

Conclusions

The Maria Montessori method seeks to put the world within the reach of children, facilitating educational processes through the free discovery of their own world, adopting practices that respond to children's natural needs, preferences and likes, but at the same time planning and supervising children's development of cognitive and personal features. Cognitive processes that are fostered are making inferences and deductions from the experimentation with specially designed learning materials. The method also promotes personal characteristics like children's self-confidence, motivation, and autonomy. Adults either parents or teachers should guide children but not rule every single activity or reaction.

We could see specific teaching practices during the COVID19 confident that enhanced children's bilingual literacy and applied some of the principles mentioned before. Those practices were storytelling through reading routings that lead to reading inferences and recognition of new words in English, the use of bilingual TV programs that use vocabulary clues where children also make inferences or are allowed to be exposed to L1 to make sense of new words. In conclusion, in regards to our initial research question, we can assert that Montessori's principles have been applied to develop children's bilingual literacy and that the sanitary crises did not refrain teachers from continue adapting and developing children's bilingual literacy creating adapted reading material or using open access sources that respond to both Montessori principles and by the same token are coherent with children's educational needs.

Limitations

There were some difficulties finding articles that specifically or literally applied Montessori's principles in children's bilingual literacy development during 2020 and 2021 in the databases accessed. We overcome this obstacle by identifying teaching practices during the same time and to develop children's bilingual literacy and articles

about Montessori's principles applied to teaching English articulating both kinds of papers. Another limitation we found was the lack of access to the documents, since at the beginning, we found many abstracts that promised enriching content for our research, but access to the full document was limited and closed, which limits the initial purpose of the research.

Ideas for further research

Teachers and educators can apply the findings about vocabulary and reading bilingual literacy presented in this article in their teaching practices to develop children's bilingual literacy development, do research and report their findings. If preschool teachers foster bilingual literacy using books in English, adapting stories, selecting bilingual TV programs or adapting strategies to learn vocabulary, they may find similar results as the ones reported in this paper. Teachers can also adopt and undertake research about sensorial storytelling practices in their remote sessions and incorporate parents in the teaching practices. Also, there could be studies where the tool to assess the quality of learning gaps is used or adapted for evaluating the impact of popular children's learning apps in the Colombian context. These are some of the examples on how this paper can contribute with ideas for future research and preschool English teachers' practices.

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