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Google Jam board as a possible solution for e-learning in preschool

Introduction

Information and Communication Technology (ICT) nowadays is everywhere, we use it for reading this article, for writing it, for sharing it. As a consequence, its presence in the teaching-learning process has been increasing in the last decades allowing children to acquire their full participation in society (European Commission, 2018). Being a significant element suggests a main role in all educational stages. Likewise other components, we adapt the contents, resources and objectives depending on the needs of each student. However, when we try to apply it to preschool education there are several obstacles, related to different elements as teachers, children or the resources themselves (Gil, 2021). The actual Covid-19 situation affected schools around the world, has highlighted these barriers that already existed specifically for learners under 6-7 years old.

Obstacles

As it was mentioned before, the obstacles are related to different aspects. For example, we can appreciate difficulties linked to teachers, specifically to their formation. At first sight, in the case of the Canary Islands, most of preschool teachers will retire in the next five years, the fact that can have a considerable influence on their perception of ICT and how to use them. However, even younger teachers have similar problems. In other words, we have to focus on the source, the formation they receive. Analysing the current situation of preschool educators who have interest in learning about this aspect there is a peculiar case. Despite the relevance and concern related to both topics the formation offer is insufficient, conducting teachers to acquire this type of knowledge autonomously (Guimeráns, López, & Rodriguez, 2021). But this difficulty is not exclusive from Spain. There are studies developed in other countries, like Konca et al. (2016), showing the big distance between what is learned by educators about the use of ICT and what is required in the class reality. Another relevant aspect of this research, mentioned in other studies (Carrasco, & Correo, 2015), is the negative impact it has not only on teachers, but also on children. This need of an ongoing formation for teachers, as well as being connected to the reality of each classroom has been highlighted by several countries (UNESCO, 2008). At the same time, teachers have to integrate their technology knowledge to their own pedagogical experience, which can be highly complex in most cases (Masoumi, 2015).

As a result of this interaction there are some characteristics that ICT resources should have, in order to be employed effectively in the learning process, (Mayer, 2005):

- Simple and intuitive: the materials designed for children should avoid any type of element that may be a cause of distraction, like many details or functions, if we focus on ICT resources.
- Cannot have any type of text: analysing many of the platforms and activities that involve ICT most of them require reading or typing, skills that they do not have at these ages. This aspect, that apparently is quite obvious, is one of the biggest obstacles we face as teachers when we are looking for this type of resources. For example, having to access with a username and a password may not be such a big barrier for an online environment, in case of a lockdown due to Covid-19. However, when we want to use it in class it can be an important disruption to the learning dynamic.
- No ads: they can increase the level of distraction as well as interrupt the activity.
- Flexible and adaptable: some online platforms offer "packed" resources related to different themes. Nevertheless, this could not be the best option because we need to adapt them to each of the realities present at our class. If the resource has not got a certain level of flexibility that allows us to modify, it can become impractical.

The need of providing ICT resources as well as its complexity and the unique characteristics they have, have been highlighted due to Covid-19 situation. Many preschool and kindergarten teachers did not know how to manage an e-learning environment during the lockdowns (Jalongo, 2021). This lack of formation and ability negatively affected children and their families, having to dedicate most of their time into trying to, somehow, develop their education from a home-schooling perspective. In particular Thorell et al. (2021) showed some of these effects in families of seven European countries: higher demands on their children, conditioned participation… Highlighting how parents of younger children reported significantly more problems compared to parents of older children. Nowadays lockdowns are part of our new reality, which means another aspect to consider when we are searching for ICT resources and activities for these ages. In other words, an effective resource for education should allow us to use it at class and transfer it into an e-learning environment in case of a lockdown. Other consequence of Covid-19 is trying to avoid physical interaction as much as possible, a problem that can be solved from a digital perspective. For example, if each student has its own device, like a tablet, with an acceptable Internet connection they can interact between each other and teachers respecting the social distance and avoiding physical contact. Also, by having e-learning resources or platforms adapted for preschool we will be improving their autonomy. And, at the same time, we are helping families to reduce the amount of time they have to dedicate to the education of their children in case of a lockdown.

Aims:

- Find an ICT resource suitable for pre-schoolers in both scenarios: ordinary class and lockdown.
- Because of the lack of formation, it should be as accessible as possible for teachers.

– In case of a lockdown, it must allow to continue the learning process in an on-line home schooling version, that does not require a high participation of the families. Fomenting the children's autonomy.

Possible solution: Google Jamboard

This resource is a part of the tools offered by Google, it consists of a "digital online board". In an ordinary classroom it can develop the functions of the traditional whiteboard, complement the lesson or the story, be used as the linker during the circle time, do some individual or group activities…Since it is related to Google it can be connected to other Google tools like Drive, making it possible to collect all the activities and consulting them in different moments. The existence of this "digital library" has shown several benefits in a long-term basis (Murado, 2011). Likewise, it will permit the student to access to them from their houses in their own device, like a tablet. Moreover, connecting the classroom and their homes by this platform will allow the educator to continue the learning process in case of a lockdown, or as a reinforcement of a specific aspect. In addition, the design and interface are very simple and intuitive facilitating its access and control to both, students and teachers. Google Jamboard itself is a very recent resource, and as a consequence there almost no research about it. However, the interactive white board is a topic that has been studied in different context, including English and Spanish speakers of different ages. There are numerous advantages of its participation in the class dynamic, some of them can be applied to preschool students (Gallego, & Cacheiro, & Dulac, 2009, Marquès, & Casals, 2016):

– Higher levels of motivation,
– More opportunities of participation and collaboration, improving the social and personal skills,
– Helping students to comprehend concepts and ideas with a high complexity level,
– Easy and simple use for teachers and students,
– Fomenting flexibility of the teacher providing access to a wider range of resources,
– Facilitating the access to ICT, avoiding visiting the computer room.

Method

What we have done for helping them to discover this tool is introduce it as a toy. For example, in the beginning we let them play with it by drawing on the digital board. Throughout this process they discover how to change colours and the type of pencil by themselves. Then we incorporate it to the class dynamic by doing the homework all together on the board. Once they know how to use it, we started to prepare activities involved with it (Graells, 2004). But when we want to design using Google Jamboard its simplicity may become an important limitation to teachers. Certainly, we can develop some activities just by drawing. For example, we can combine it with the shadows and positions creating different shapes for learning the

human evolution (Picture 1), body parts, animals…But it is necessary for teachers to complement Google Jamboard with other ICT resources that have a wider range or designing tools. Some possible options are GoogleSlides or Canva, but they must allow you to download the final product in an image format like.jpg or .png. Once it is designed, it is applied as the background of the board. When it is done, deeper and more complex activities can take place. The easiest are those called "drag and drop", they consist of interacting with different images we have uploaded in the board. For example, we ask the children to place their own "Neolithic village" on the map near a village (Picture 2). Other activity consisted of ordering the pictures in the correct evolutive order (Picture 3) or a puzzle (Picture 4). In some dynamics we combine "drag and drop" with drawing for counting and writing the numbers (Picture 5). However, while for the previous activities children were using their fingers for interacting with the ICT device, when they have to write it, it is necessary to use a gadget in order to develop proper fine motricity skills. When we decided to start using Google Jamboard as a way to improve 5-year-olds' writing skills we realized this need. After searching for it we found the pedagogical pencil designed by Ymagina. The shape of it and its different tips appeared to produce better results than the traditional pencil, improving their fine motor skills and their body posture. Also, they began to have a more positive attitude towards writing, as they considered a part of the "games" we played on Jam Board (Picture 6). Additionally, as Google Jamboard can be connected to other tools from the platform we incorporate it to Google Drive. It can be used in two different forms, as the organizing space where a teacher will organize their e-learning environment, or as a part of an activity. For example, we asked the children to design their own "Neolithic village" by looking for icons and drag them on the background. When they looked for the images they opened a folder in Google Drive, from Google Jamboard, and chose which elements will be in their village (Picture 7). The folder was already full of different icons, not all of them related to the Neolithic, prepared by the teacher.

All these experiments with Google Jamboard started in one of the two groups of 6-year-olds present in the public school of San Fernando (C.E.I.P San Fernando) in Santa Cruz de Tenerife, Canary Islands, Spain. This group was composed of 24 children who were between 5 and 6 years old. Most of the activities were designed for them. The activities were developed in different sessions that took place between February and April 2021. The theme of the activities, prehistory, corresponds to what it was programmed for that period of time. Because of the volume of students, some activities will require more than one session in order to be done by all of them. Also, in the case of the dynamics related to acquiring writing or counting skills, they will happen within a week due to the interest of the teacher in both topics. Some of them will continue even after the conclusion of the experiment. It is necessary to mention that the teacher did not participate directly in the development of the experiment. Because of the lack of formation mentioned before, she preferred to observe and learn how she could use this resource in the future, instead of trying to use it by herself.

Additionally, some activities were adapted and modified for 3-yearl-olds and brought to one of the groups of the same school. This group was composed of

17 students, two of them with autism. In this case, the number of sessions were significantly reduced compared with the first group like the time (3 weeks, May 2021). As a result, the data proportioned by this group will not be considered in this research. Also, like in the first group, the teacher did not want to participate directly, she opted for learning from this experience.

Data Collection tools and results

This research started as an informal experiment, so the data collection is based on the observation and interaction of the students with the resource. Because of the conditions of the school and the families it was not possible to test the utility of the resource in an e-learning environment. The key elements during the observation were interest and autonomy. Both of them will differ depending on the student and on the moment of the experiment.

In the case of the interest in the beginning it was determined by the personality of each student, and how they perceive the digital board. This ICT resource was only used for projecting videos or images, having almost no physical interaction with it. As a consequence, most of them perceive it as an intriguing element that will get their attention. However, a small number of the students were afraid of touching it. In other words, their initial reaction could be classified in excitement, confusion and fear being the least common. When they started to habituate to their reaction, they will become more positive, establishing a direct relation between the number of sessions and their acceptance of the resource. It will be shown in different ways like asking for more activities, or for spending more time with it, or even willing to repeat them several times. This direct increase of interest corresponds to the results of the study developed by Coscollola, (2011) about the implementation of ICT for elementary and secondary students.

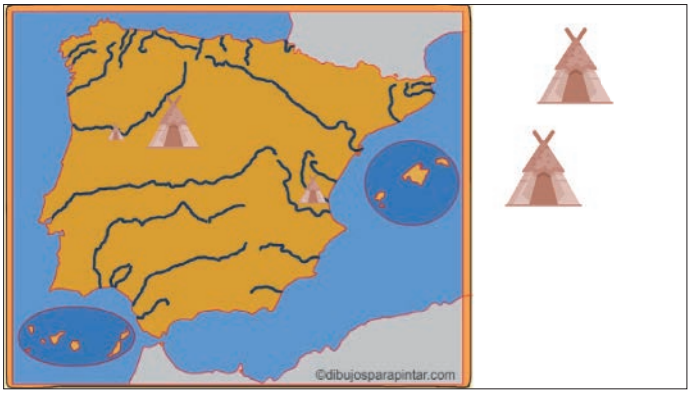
As for the autonomy, a similar situation related to the interest was observed. During the first sessions they will require the adults' help for simple actions, like changing colours, type of brushes, moving images… Depending on the student some will try to do the dynamic by themselves, and others will require a few subsequent sessions. But in the end, all mastered the basic and simple functions of this resource like choosing images, modifying their size and place, changing colours and brushes… Also, they asked other students for help or explanations about how to use it. As a consequence of this high level of autonomy, the role of the adult in the last sessions will be limited to designing the activities and opening and closing the application.

Conclusion

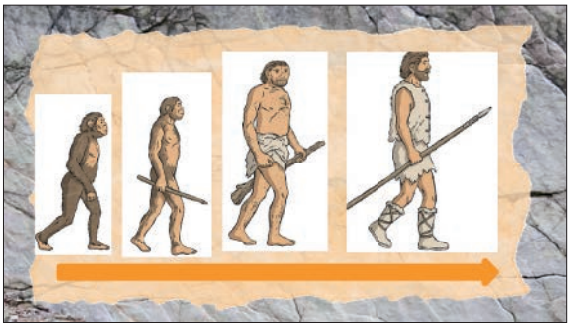
Although there might be other options for preschool education, especially after Covid-19, Google Jamboard is a resource that educators and schools should be taking into consideration. Despite the activities suggested, that were developed at class with the digital board, they can be used on other devices like tablets. Thanks to it, in case of a lockdown there will be a continuity between what has been worked at class and the e-learning environment that is going to take place during the next weeks.

However, one of the principal limitations of these research was the impossibility of testing Google Jamboard in this type of situations. Also, it is a very new and recent resource, thus more research should be developed in the future about it, considering its different future versions. Although this study may seem informal, since it started as a mere experiment, it can be regarded as one of the first steps in the exploration of Google resources for pre-schoolers. Other possible limitation when using this resource is the complexity related to the design of the activities, as a result of the lack of specific resources for these ages (Coscollola, & Graells, 2013). However, this is not the answer to the main problem addressed by Konca et al. (2016), the distance between the ICT formation of preschool teachers and what it is actually required at schools. Despite offering a short-term solution in this article, the effort of institutions should be in the improvement of ICT formation offered to preschool teachers who need it to be more practical and updated.

Picture 1



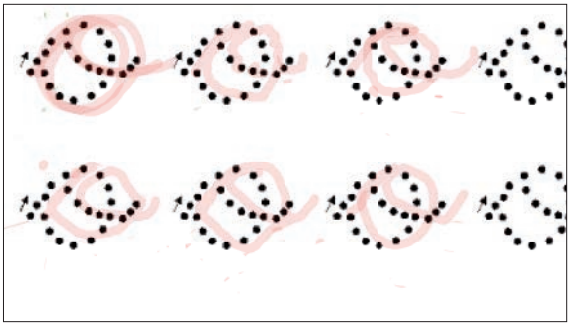
Picture 2



Picture 3

Picture 4

Picture 5



Picture 6

Picture 7

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Abstract

The purpose of this article is to explain some of the barriers that preschool teachers can face when they are trying to implement ICT resources in their classes. At the same time, we will suggest some ideas to overcome them as well as examples of different activities developed at CEIP San Fernando, a public school in Tenerife, Spain. Although they are about prehistory, they can be applied to many different themes. Also, some can be used on different devices, like tablets in case of an online learning environment for a lockdown due to Covid-19 situation. Another topic that we will be focusing on is the use of physical resources that complement the digital experience.

Key words: technology in preschool, technology in kindergarten, Google for education, digital board

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