



Digital Natives in Preschool: Mexican Teachers' Perspectives on Technology-Influenced Learning

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Received: 7 June 2024 ▪ Revised: 20 August 2024 ▪ Accepted: 19 November 2024

Abstract

The purpose of this cross-sectional phenomenological study is to explore and understand the impact that the use of technology and social media at home has on preschoolers, and how such technology outside the classroom influences their reactions and attitudes to traditional materials. This study explored the perspectives of five preschool teachers, who are the ones who have observed and lived this phenomenon in preschool classrooms, generation after generation. The instruments used for data collection were questionnaires and semi-structured interviews. After conducting a thematic analysis, the results suggest that digital resources and materials obtained more positive responses due to their engaging and interactive nature, whereas traditional materials were often met with boredom or disinterest by preschoolers.

Keywords: preschool, digital natives, external factors, classroom materials, teacher perspectives.

1. Introduction

The main objective of this study was to explore and understand a current phenomenon that has emerged in recent years and has been growing exponentially in preschool children. This phenomenon is about the rapid changes in how preschool children learn and expand their knowledge at an increasingly younger age due to technology, generation after generation. The rapid development of technologies and media have changed children's lives and ways of learning, including preschool children (Hsin, Li, & Tsai, 2014). Currently, a wide variety of studies can be found related to topics such as the use of technology in children (Mertala, 2016), the effects of technology on learning and academic performance (Ozerbas & Erdogan, 2016), implementation of technology and digital media in the classroom and childhood centers (Donohue & Schomburg, 2017). However, most studies typically focus on technology designed especially for learning or children, in school and non-school settings. However, several authors such as McPake, Plowman, and Stephen (2013), and Hsin et al. (2014) agree that very little has been studied about the use and influence of digital technologies at home that are not intended for young children under 5 years old. This implies that little has been investigated on how the influence of technology at home has an impact on the behavior, attitudes, and responses that children (specifically preschool children) have towards the materials, activities, content, and forms of learning in the classroom in a Mexican context. It is important that this issue and its impact continue to be studied, even more so because it is something that will likely continue to affect or impact education and teaching practices in general. Therefore, this study aims to understand this phenomenon in the Mexican

context through the perspectives of Mexican preschool teachers, who are the ones who have observed and lived this phenomenon in preschool classrooms, generation after generation. This research seeks to answer the following question: *What are the perspectives of Mexican kindergarten teachers of preschool children towards learning materials used in the classroom?*

2. Literature review

The following section will present an overview of previous research in the areas related to types of materials used in the preschool classroom, external factors and use of technology and media out of the classroom, and digital natives.

2.1 *Types of materials used in the preschool classroom*

As young children and preschoolers nowadays have an earlier and easier access to technology and digital multimedia, digital learning content is being designed specifically for children. This has led to research testing and comparing the different types of learning materials and content available today for young children (e.g., Kjallander & Moinian, 2014; Mertala, 2016; Ritcher & Courage, 2017; Reich, Yau, Xu, Muskat, Uvalle & Cannata 2019). In this study, it is important to provide a description of the materials used in the classroom in order to better understand the preschoolers' responses and reactions to different kinds of materials. In this case, materials are classified into traditional and digital. On one hand, traditional materials refer to classroom materials, content, and resources that do not require technological devices to be used. For example, traditional textbooks, printed worksheets, flashcards, physical objects, etc. These materials are typically static and do not change based on user actions (Richter & Courage, 2017). On the other hand, digital materials are those that depend on technological devices such as computers, mobile phones, monitors, and MP3 players to games, videos, music, e-books, and animations available on the internet (McPake et al., 2013).

2.2 *External factors and the use of technology and media out of the classroom*

Because of the rapid development of technologies and digital media, children's lives and ways of learning have changed dramatically in recent decades. However, they are not only using technology and digital multimedia designed especially for children. According to authors such as McPake et al. (2013) and Reich et al. (2019), young children also engage with a wide range of domestic technologies, social media, mobile devices, digital content, and other forms of external influence that are intended for adult use. Technology and digital media have such an impact on children that today a large variety of studies and research reviews can be found on this topic (e.g., Hesin et al., 2014; Coyne, Radesky, Collier, Gentile, Linder, Nathanson & Rogers, 2017). In addition to the influence that technology has on the cognitive, psychological, emotional, and social development of children, researchers have been interested in the role that technology has on young children and the influence it has on various aspects such as learning and academic performance (Crescenzi, Jewitt & Price 2014; Dontre, 2021). Likewise, according to Tuerk, Anderson, Bernier, and Beauchamp (2021), another important external factor to consider in children's development and learning are the proximal influences that children have outside the classroom, for example, parent-child interactions, caregivers, parental practices, or family functioning. Therefore, the use of technology, consumption of digital media, and proximal influences outside the classroom are important external factors to consider and are crucial to understanding preschoolers learning and learning preferences.

2.3 Digital natives

The term digital natives (DNs) is used to identify individuals who were born in the last two decades of the digital era and are growing up exposed to continuous evolution and constant updates in the field of technology. This concept was introduced by Prensky (2001), who considers digital natives as *native speakers* of the digital language of computers, video games, and the internet. However, Dingli and Seychell (2015) argue that due to the great changes and adaptations that technology and the digital world have had in recent years, DNs can also be divided into generations, the first and the second generation. They consider the first generation of DNs as “late starters” (p.1) since there were no devices with touch interfaces and therefore, their exposure to computers and the internet started when they had sufficient knowledge and skills to operate the mouse and keyboard. Moreover, the different mobile devices in existence and the internet at home were less accessible, and the social web that we have today did not even exist yet. In contrast, the second generation of digital natives (2DNs) was born in an era where the internet and technology are more accessible. In addition, a lot of devices nowadays are *smart* devices and come with a touchscreen, thus, the basic requirement to use such a device is a finger. Furthermore, according to Dingli and Seychell (2015), one-year-olds of 2DNs manage to master the intuitive touch interfaces of their tablets they do not even need to understand the basic concepts of a language before operating a device (as in the case of the first generation of DNs). Understanding DNs is crucial in educational settings, as their learning styles and preferences differ significantly from previous generations. For example, DNs tend to prefer interactive and multimedia-rich learning experiences over traditional, text-based methods. Moreover, they are used to instant communication methods such as social media, messaging apps, and video calls. According to Kivunja (2014), DNs learn not from the linear, paper-based data in textbooks but from hyperlinked, random-access, digital sources that are available online. They learn, not simply by reading, writing, and arithmetic, but with the assistance of online tools, simulations, games, online videos, and even social media. Thus, the concept and understanding of DNs, in general, is particularly relevant to this study, as it aims to examine how the use of digital technologies at home affects preschool children and how teachers perceive these changes in a classroom setting.

3. Methodology

This section presents the methodology design for this cross-sectional study. The research question that guided this study was:

What are the perspectives of Mexican kindergarten teachers of preschool children towards learning materials used in the classroom?

3.1 Paradigm and method

The perspective that this research adopted is the postmodernism paradigm, which is a perspective in which ideas enter under the umbrella of qualitative research (Heigham & Croker, 2009). In the postmodernist worldview, diversity among people, ideas, and institutions is celebrated and equally valued. By accepting the diversity and plurality of the world, no one element is privileged or more powerful than another (Merriam & Associates, 2002, as cited in Heigham & Croker, 2009). Therefore, postmodernism seemed the most appropriate paradigm for this research as it aligns with the objectives and expectations of the study, that is, to obtain different points of view of the same phenomenon from the perspective of participants with different backgrounds (different years of experience) in order to have representativeness.

Following the qualitative tradition, the research method or research approach employed in this study is the phenomenological approach. The purpose of phenomenology is to

look in detail at the phenomena under study to explore the complex world of lived experiences from the participant's (the ones who live it) point of view (Qutoshi, 2018). In other words, the focus is on a deeper understanding of phenomena embedded within research participant's views and perspectives. Therefore, this approach is the most suitable for the present research as it leads to gaining a deeper level of insight into the personal experience and knowledge of the participants, but the focus is still on the phenomena. Moreover, under a phenomenology approach, a researcher can reflect critically and become more thoughtful and attentive in understanding social practices as well (Qutoshi, 2018). This is also convenient for this study as it is also intended to know the impact and effects that the phenomena have in the participant's context and professional practices.

3.2 Research context and participants

This study included the participation of 5 female preschool teachers who have different years of experience teaching in the state of Guanajuato, Mexico. In order to participate they needed to meet the following criteria:

- Be a preschool teacher at present or have had experience teaching preschool children no more than a year ago.
- Give or have given classes within the state of Guanajuato, Mexico.
- Years of experience as a preschool teacher.

According to the demographic data collected through a questionnaire, all the teachers participating in this study currently teach in private institutions. Moreover, all participants only have experience in private schools except for one, who has previously had experience teaching preschool in the public sector. These points along with other characteristics are important to consider as might have an impact on the participants' perspectives and perceptions of the phenomenon studied in this research. Moreover, additional characteristics and qualities contribute to representativeness, which is also valued in this study.

3.4 Data collection procedures

The data collection for this study was conducted in October 2023. Two instruments were used to collect the data: semi-structured, and questionnaires. The design of these data collection instruments, as well as the data collection process, was in Spanish, the first language of the participants.

3.4.1 Questionnaire

A demographic questionnaire was applied to the participants in this study previously to the interviews to collect demographic data and general information from the participants to:

- Collect demographic and personal information that could be relevant.
- Obtain information that helps to have a better understanding of the context and perspectives of each participant.
- Adapt and restructure some questions that will be asked in the interview if necessary.

This questionnaire was designed and applied with both open-response items and closed-response items.

3.4.2 Interviews

Data was collected via semi-structured interviews, which Saunders, Lewis, and Thornhill (2003) described as a means of data collection that can help to gather valid and reliable data that are relevant to a research question(s) and objectives. This data collection instrument was employed because of its flexibility. As this study aims to explore the phenomenon being studied by looking at different perspectives and experiences, additional questions may be added since understanding each perspective in detail is essential.

Each interview was conducted one-on-one with each participant. All interviews were conducted face-to-face except one of them due to the geographical dispersion and inability to come to a central location for an interview. Instead, this particular interview was conducted and recorded via videocall in Zoom, and subsequently transcribed to be coded and analyzed.

The base questions of the interviews mainly focused on teachers' perspectives of traditional materials vs digital materials and technological devices, implementation of technology in the preschool classroom, as well as changes, adaptations, and evolution of teaching and learning practices in preschool due to technology-influenced learning.

3.5 Data analysis method

The data collected and transcribed from the semi-structured interviews was analyzed with a thematic analysis method to identify patterns in the experiences and perspectives of the participants about the phenomenon, how it arose, and its impact in the preschool classroom. Thematic analysis is a method for analyzing qualitative data that involves identifying patterns and recurring ideas (referred to as themes) in a qualitative data set (Riger & Sigurvinsdottir, 2016). Thematic analysis allows searching for subjective information, such as a participant's experiences, views, and opinions.

3.6 Ethical protocols

To respect and protect the privacy of the participants, pseudonyms were used instead of their real names. Additionally, they were provided with an informed consent form to ensure well-informed and voluntary participation. In such informed consent forms were established the purpose and objectives of the study, how the data and results would be used, the activities in which participants would contribute by being part of the project, as well as the risks and benefits of participating in the project. Furthermore, in such a consent form anonymity was guaranteed to participants and they were informed of the right to choose to withdraw from the project at any time.

4. Findings and results

This section presents the results of the study with the objective of answering the research question: *What are the perspectives of Mexican preschool teachers of preschool children towards learning materials used in the classroom?* During the data analysis process, five themes emerged: (1) Preschoolers' attitudes towards traditional vs digital material, (2) more "awake and aware" children in the classroom, (3) the replacement and adaptation of traditional materials with digital materials, (4) the role of technology and media outside the classroom, and teacher difficulties with technology.

4.1 Attitudes towards traditional vs digital materials

Most of the teachers participating in this study pointed out that there is a notorious difference in the attitudes and reactions of preschoolers towards the use of traditional material and the use of digital material. One of the teachers stated that there are more positive attitudes and reactions towards digital materials and activities that involve such digital materials or technological devices:

"I have seen that children are very interested in what is related to the internet and technologies at present. And they are more engaged and attentive if technologies are involved" (Helena, Int.)

This teacher also points out the main differences when she uses technology and digital resources, and mentions that their preschool students are especially motivated by audiovisual resources:

"Well, the first thing is that you capture their attention, with what is novel for them, the interest is immediate, especially with videos and screens, and they immediately show interest and do pay more attention to you." (Helena, Int.)

In contrast, they mention that they have perceived more negative attitudes towards traditional materials. For example, Blanca reported experiencing and witnessing more negative attitudes and responses related to traditional material in the classroom:

"Now they only last 15, 20 minutes with, for example, plasticine and they complain 'I'm bored already' Yesterday when we were learning the numbers, I told them, Let's mold them with plasticine 'I'm already bored'. (Blanca, Int.)

Likewise, teacher Fabiola reports a lack of concentration and motivation when working only with traditional materials:

"Yes, well, all those materials that have to do with concentration, for example, the books that are basic, those that are to teach them to read or teach them mathematics. Precisely because since they are not graphics that move, they sort of say, 'Hey this book what?' 'Or this what?' Since children are now accustomed to the fact that all the animations, they look for something interactive and animated, the fact that you bring them, perhaps, a copy, does not attract their attention." (Fabiola, Int.)

Similar to Blanca and Fabiola, Helena mentioned the following when asked if preschoolers' attitudes and responses would be positive if only traditional materials were used:

"No, I think they would get bored more easily, they would get totally bored. Children need more activity and more stimulation to really get involved in the activities." (Helena, Int.)

On the contrary, Maria, the teacher with fewer years of experience, argues that she thinks that there is no such big difference in her students' reactions and behavior, the difference is in the time they are engaged with materials:

"I think that all the material continues to work, but only for less time." (Maria, Int)

It is interesting that this teacher does not think that there is a difference in the reaction that students have to traditional material, but that the difference is in the time that the material keeps them hooked or involved in an activity. This may be due to the generational and experience gap between teachers since teachers with more years of experience can probably see a clearer contrast in the change of materials and their effectiveness.

4.2 More “awake and aware” children in the classroom

An interesting pattern that emerged during the analysis is that teachers perceive digital native preschoolers of the most recent generations as “more awake and aware” due to the influence of technologies and social networks. The teachers explain that due to the easy access that nowadays children have to technology, mobile devices, and social media, children of the last generations (from 2021 to 2023) are “more awake and aware”. This is in the sense that now children are more knowledgeable and acquire much more information and skills at a much earlier age than in previous generations. One of the teachers comment:

“Well, they are already more awake and as I told you, perhaps the stimulation at home, they don't like just simple activities anymore, “Oh no, it's just coloring”, no, they are already looking for more.” (Blanca, Int.)

In the case of teacher Blanca, the consequence of such a phenomenon could be perceived as something problematic for her as a teacher, since she mentions that now her students need more than “simple activities” and that require more materials and resources, more activities and more creativity than before. This could be an example of the influence that technology and social media have outside the classroom and shows that such influence also has an impact on the classroom for both teachers and students. However, more “awake and aware” preschoolers are not necessarily a problem or do not mean a disadvantage or something bad, as Fabiola suggests:

“It is precisely this part that now children learn things much faster, they have more memory capacity than they did 10 years ago, for example.” (Fabiola, Int.)

Similarly, Helena pointed out some advantages of “more awake children”:

“I notice the children are much more awake. In every sense. And that is thanks, perhaps, to the same technology and the lifestyle they live now. They are more aware of many things that perhaps the children of before were not. Above all, I also see that children today are much more expressive, more social 'no teacher, it's this', 'no teacher, it's that.' Most of them express themselves without any problem.” (Helena, Int.)

On the other hand, Fabiola noted that this issue of more knowledgeable children has also contributed to changes in teaching strategies, and sometimes it can be challenging for them as teachers to be flexible and adaptable.

“Now from what the child knows is where we depart to teach and for us to know what to teach. Right? And yet, well, in my previous training practices, when I was just starting, the teacher was the one who shaped that part of the knowledge, and now is not, now the children give us a lot of information to depart from their learning.” (Fabiola, Int.)

Then, this information matches with the suggestions of several authors (e.g. Mcpake et al., 2013) that nowadays digital technologies used at home in smart and intuitive devices, have the potential to expand the knowledge of young children and help them to become more “awake and aware” by fostering their communicative and literacy skills. Of course, this is perceived as something good and advantageous for the teachers, however, it can also be challenging for some teachers as they need to be updating their strategies, methods, and practices to take advantage of such early knowledge and to facilitate learning in the classroom.

4.3 Replacing and adapting the traditional with the digital

Another recurring theme identified during the data analysis was the need to adapt or even replace materials and activities due to the current preschoolers’ learning preferences and needs. For example, teacher Fabiola comments:

“There are materials that we definitely have discarded because they do not have functionality for children because they do not attract their attention, as I told you. In this case, it could be a content book for math. Or for example, the use of nothing more than the blackboard, now you cannot be using it all the time.” (Fabiola, Int.)

Of course, there are many reasons and factors that lead to changes in material, activities, and teacher practices in general. However, the participants mentioned that one of the main reasons why they have had to change, adapt, and replace traditional materials and activities was due to the impact of technology, digital devices, the internet, and social media. For example, Helena mentioned:

“Well now everything is being renewed and well, what is behind is left behind because now technology and what is new is what really interests them” (Helena, Int.)

One of the teachers argues that, in her case, rather than replacing, it is complementing the traditional with technology in order to keep the students engaged and motivated:

“More than anything it is like complementing. If, for example, I'm teaching the vowels, I play them a song about the vowels, so it stays more with them. Then I include the... the screen, a video of the vowels, and then they on a piece of cardboard on the floor with chalk and other materials, complemented with technology. I believe that both are essential, both forms of traditional and technological materials. I believe that everything... everything is useful, and we can take a little of everything.” (Blanca, Int.)

Similarly, Blanca says that is important to complement traditional materials with technology and digital resources with which children are already very well familiar.

“I think that now we complement or facilitate the child's learning through technology, which they also find at home. (Blanca, Int.)”

Additionally, is noteworthy that something that was mentioned by various participants was that they specially started to replace materials and activities much more in the past three years. This may suggest that the radical shift to technology because of the need for confinement during covid 19 had a major impact on the early learning experiences of children now attending school.

4.4 *The role of technology and media outside the classroom*

Of course, something discussed and mentioned during the interviews was the role that technology and media have as an influence on children outside the classroom. Regarding this theme, during the data analysis different opinions, perspectives, and examples arose about how technology and social media have influenced children. Some participants highlighted the diffusion and accessibility of technologies and digital content, for example, Fabiola mentioned:

“I think it's not that the influences of now are better or worse. The influences and content have not changed much, rather, what changes are the contexts, accessibility, and dissemination. And now fashions change more constantly.” (Fabiola, Int.)

In the same way, Helena commented the following regarding easy access to technology and the fast change in trends spread in social media:

“Now fashions and trends change more constantly. So, I say, maybe the trends now are more volatile than when I was little or 10 years ago, right? For example, before you could only listen to certain music if you had a cassette or a CD or watch the movie if you had the DVD. Not now, now you go on the bus, and you hear the music,

you are anywhere, and you can access almost anything because everyone has access to a cell phone and the internet.” (Helena, Int)

Some of the teachers suggest that this easy access and overuse of technologies and the internet at home could contribute to the lack of motivation in the classroom and be one of the reasons why nowadays it is harder for children to focus for longer periods of time. For example, Blanca mentions:

“Stimulation at home, I think, has a lot to do with it. They are active all the time, which parents allow them to use because... aside from that they also have a tablet all the time, a cell phone in their hands, and well, because of that they need to see colors, they need to see movement, they need... to be active so yes, by the stimuli from outside, the stimuli at home, the stimuli in society.” (Blanca, Int)

However, again, Helena does not see this as a complete disadvantage, on the contrary, she argued that this influence and the impact of technology and the different media that children consume outside the classroom can also be something good:

“They now have more alternatives to learn and express expressions. Not just parents or family. They are not limited to ‘Oh, I heard it from my aunt’ No, they now tell you ‘Oh teacher, haven't you seen this and this?’ Now they narrate and tell you a whole story about something or the meaning, and that is the advantage.” (Helena, Int)

These perspectives may imply that the influence of technologies, mobile devices, social media, and the internet outside the classroom can impact the classroom, and preschoolers' learning and development and can bring both advantages and disadvantages for teachers.

4.5 Teacher difficulties with technology

Another notable pattern in the answers of the participants is the difficulties that they as teachers had and still experienced due to the impact that technology has on children's learning and lifestyles. For example, some of them mentioned that they need to prepare more activities than in past years because children's span of attention has become shorter.

“I think they were calmer before and they accepted activities that do not involve more than coloring, um... or gluing paper balls and... things like that, no. Now the children want movement, more material, and several forms of stimuli at the same time or in the same activity. Now if you spend more than 20 minutes on the same thing their attention has already been lost on a different thing.” (Blanca, Int.)

Some participants further mentioned that they also find it difficult to keep up with the trends, especially when it comes to music, language, characters, artists, movies, etc. that children consume outside the classroom nowadays, which makes it more difficult for them to make the students identify or relate to the content that the teachers can offer them.

5. Conclusion

The main purpose of this study was to explore the perceptions of preschool teachers about the lack of engagement of preschoolers with traditional learning material in the classroom. The main findings show that preschool teachers perceive a significant disparity in children's reactions toward traditional and digital materials. Digital resources and materials garnered more positive responses due to their novelty and interactive nature, whereas traditional materials were often met with boredom or disinterest. Teachers noted that children nowadays are accustomed to animated and interactive content, which seems to affect their engagement with static materials. Moreover, the results of this study show that teachers perceive preschoolers of current generations

as more alert and knowledgeable, attributing this to their exposure to technology and social media. This study was limited to a small number of participants in a small region, and only two data collection instruments were implemented. These conditions make it difficult to generalize the results. However, despite the limitations, this research makes a valuable contribution to understanding the impact that this phenomenon has on a small scale in the context of Mexican preschool classrooms through teacher's perceptions. Furthermore, the results of this study have provided interesting insights about specific aspects and factors that could be further investigated in the future, such as children's shorter span of attention that the teachers mentioned in this study.

Acknowledgements

I would like to express my gratitude to Dr. Irasema Mora Pablo and Dr. Alejandra Nuñez Asomoza for their invaluable assistance in the process of the study and writing of this research paper. Their expert guidance, feedback, and support were crucial in shaping this work. I am deeply appreciative of the time and effort they dedicated to helping me achieve this accomplishment.

This research did not receive any specific grant from funding agencies in the public commercial, or not-for-profit sectors.

The author declares no competing interests.

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