**ISAE UNIVERSITY**

FACULTY OF EDUCATION SCIENCES AND HUMANITIES

BACHELOR OF ARTS IN ENGLISH

VIRTUAL EDUCATION AFFECTS THE PERFORMANCE OF THE CIRILO J.

MARTINEZ ELEMENTARY PUBLIC-SCHOOL, TEACHERS IN PEDREGAL,

DISTRICT OF PANAMA DURING COVID-19

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**Dedication**

This thesis is dedicated to every education professional who has never lost the desire and enthusiasm, and tenacity to keep on learning virtually to give their best while teaching in the middle of the COVID-19 pandemic.

**Acknowledgment**

We would like to give thanks to all the people who have contributed to this work either through academic or emotional support. We are primarily grateful to God for the strength, wisdom, and guidance, he has been with us in each step in during this journey.

This thesis was like a symbolic rock in our path as one that was set by the prophet Samuel, when he said Ebenezer: "Thus far the LORD has helped us." (1 Samuel 7:12)

We also thank our families who, during all the frustration and hardship, supported us through it all. They were the ones who joyfully celebrated our triumphs along with us, and the ones who when needed; were willing to offer a hand too.

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On the university´s halls and rooms; we leave a piece of our lives, dreams, hope, and more, but experience gain was worthy.

Farewell ISAE!

**Abstract**

In this research work, the following are reviewed the effects of virtual education on the performance of elementary public-school teachers in Pedregal, District of Panama during COVID-19, knowing that there was no format or legal regulations for virtual education in Panama. This topic generates the main question of our investigation, which is: Does virtual education affect the performance of elementary public-school teachers in Pedregal, District of Panama during COVID-19?

We mainly worked using other authors from Latin America and with updated information from educational boards web pages almost randomly, through the COVID-19 pandemic. To build this document we consulted other sources, looking to reinforce our question. We generate surveys that can easy be shared with colleagues from different courses of primary level at the chosen area.

The main artistes of this research were the teachers, who voluntarily participated answering surveys that have shown important data that we believe can help them enrich their performance, regarding planning and sharing of contents that can be synchronously and asynchronously, on virtual classes by using adequate technological resources.

This polemic topic can create a confusion because of the diversity of subtopics that can raise from this main one, but with this research we want to reflect the discomfort and impotency of our teachers facing a new reality that all country was not prepared to.

*Keywords*: virtual education, public-school, performance, technological resources, asynchronous, synchronous, distance learning,

# Table of Content

**Introduction**

During the COVID-19 pandemic, all aspects of social life were impacted; education was not the exception. As we saw on the news, the way to deliver lessons in other countries such as Chile, New Zealand, for example, COVID 19 pandemic placed educational boards in a position in which teachers had to be retrained and equipped with more technological tools and knowledge about how to perform their jobs on virtual classes. Virtual education is defined as an educational strategy (Grossy & Kobayashi).

In Panama, all sectors of the country were affected by the COVID-19 pandemic. This forced the government and teachers to look for a new way that should cover the need of our students and to look for the way to continue receiving knowledge, and for educators to have expertise on new strategies and methodologies that not only during the crisis of COVID-19 but also, will be considered an option within the curriculum in the future.

In Pedregal, public school system did not escape this pandemic; affecting not only the community but also the students and teachers, before 2020, most of the government resources and investments were focused on implementation infrastructure, not on teacher training. That lack of innovation on new methodologies drives our main investigation question: Does virtual education affect the performance of the Cirilo J. Martinez elementary public-school teachers in Pedregal, District of Panama during COVID-19?

As well as we stated that virtual education has a significant impact on the performance of the Cirilo J. Martinez elementary public-school teachers in Pedregal, District of Panama during COVID-19, and from that moment even during the lockdown,

our objective has been to determine how virtual education affects teachers' performance at the Cirilo J. Martinez elementary public-school in Pedregal, District of Panama during COVID-19?

This research has four structured chapters. These are:

Chapter I presents the General aspects of the project. It contains the elements of study and facts studied.

Chapter II Analyzes the concepts in the Theoretical framework. It displays other investigations as an antecedent for this study.

Chapter III Describes the Methodological aspects: It shows how investigators have reached enough proofs, to confirm or deny the investigation in this project. We selected a survey due to the social distance, in this case applying a bit of this technology that we used to test on the teachers, impressive results were received throughout this survey.

At the end of Chapter IV, we offer the readers of this investigation to depict the results that show figures about results obtained that will help other generations of investigators set bases on this new normality in our country.

# Chapter I: General Aspects of the Project

## 1.1. Background of the Problem

Amaro R., (2011) in his research on didactic planning and instructional design in virtual environments, expresses that from a critical and constructive perspective, didactics constitute a theoretical and referential framework for the actions that the teacher, facilitator, or moderator in virtual environments (although also face-to-face), perform before, during and after the didactic or instructional process. (p. 132) Amaro concludes by saying that in any case, it should be kept in mind that participation in telematic contexts for educational purposes requires on behalf of teachers, a training and time effort that no enterprising institution should not underestimate.

It is important to emphasize that the role of the teacher is imperative in the teaching-learning process, where the development of knowledge, skills, values, and attitudes in students can be observed through this didactic process.

Chaves Torres, A. (cited in García Aretio, 2002), in her research Theoretical perspectives of distance and virtual education, maintains that distance and virtual education is a technological system of bidirectional (multidirectional) communication, which can be massive, based on the systematic and joint action of didactic resources and the support of an organization and tutoring that, physically separated from the students, propitiate independent (cooperative) learning in them" (p. 26).

It is definitive that, through teamwork, collaborative work, using the tools that technology provides us, allows us to learn effectively and autonomously.

Chaves Torres, A. (cited in Moore, Deane, and Galyen, 2011) consider that distance education implies a type of instruction in which teacher and student are located

at different times and places using different forms of communication and instructional materials.

While Salazar and Melo (2013, p.102) highlight the pedagogical relationships between students, teachers, and institutions, which are established using technologies and allow the systemic development of formative processes.

As a matter of fact, we believe that MEDUCA should provide the technological tools and necessary training for teachers to develop the skills required to make these pedagogical relationships effective, using technology.

Escribano H. (cited in Martínez-Chairez, Guevara-Araiza, & Valles-Ornelas, 2016), in their essay: Teacher performance as a factor associated with educational quality in Latin America, where they state that society and the school must have professionals with good preparation and with a clear awareness of the scope of their performance. (p. 2).

In this line, it takes up what was described above "clear awareness of the scope of their performance." We can start from this principle, being clear that such awareness will make me aware that my performance has repercussions on the development not only of individuals but also the impact that is made manifest to an entire society.

Escribano H. (2018) concludes that teaching performance is a key factor for quality education. Regardless of the economic solvency available and the curricular design; teaching performance, as an eminently human factor, is essential to act professionally at the height of the needs of the time and the society in question, and to propitiate with the necessary conviction and responsibility the training and learning for life.

Parra F. (2014) in his study said: The teacher and use of measurement in the teaching-learning processes, affirms that the student learns to the extent that teachers promote meaningful learning from spaces for reflection and the use of strategies that allow the construction of knowledge. (p. 160). For this investigation is considered that the teacher has an essential role because he/she is the one who promotes learning, making possible the spaces for reflection and using strategies, allowing the student to develop the capacity to analyze, thus accessing new knowledge.

Renna, H. (cited by UNESCO 2015a; UNESCO, 2016; UIL/UNESCO, 1997), In her handbook, The Right to Education in Times of Crisis: Alternatives for Educational Continuity, argues that although we know that nothing can replace an educational experience and face-to-face encounter, school systems faced with school closures can and should involve students and teachers in meaningful learning experiences to foster their development and integral formation. (p. 15).

Renna, H. (cited by Raluca, Pelini, Jordan, & Phillips, 2020) in their paper The Right to Education in Times of Crisis: Alternatives for Educational Continuity, state, according to recent studies, that technologies alone cannot close the gaps and solve learning inequities, it will be dedicated and institutionally supported teachers and education workers who ensure that learning does not stop. (p. 30).

Technology is only a means, in times of pandemic and crisis, that makes it possible to deliver the instruction, the knowledge, the enthusiasm that only the teacher can transmit.

Kraus, Formichella, & Alderete, (2019) in their paper on education despite the advance of COVID-19 in Paraguay conducted a study on the use of Google

Classroom, in face-to-face training for elementary school teachers within the Comprehensive Program for Educational Equality (PIIE) in Bahía Blanca, Province of Buenos Aires and concluded: "the actors of the research perceive Google Classroom as an ICT tool that, added to the capacity and proactivity of the teacher, can improve the teaching and learning processes favoring that these are ubiquitous." It is truly a tool that facilitates interaction between teacher and student, improving, as the authors say, the teaching and learning processes.

It is a platform that allows students and teachers to improve in the evaluative area by creating the corresponding communication channels between them, and even with the parent.

Area and Guarro, (2012) state that the limited use of strategies to activate distance learning, the lack of connectivity for developing activities in the virtual environment, and the restricted training and coaching would generate a clear cognitive and digital literacy gap in teachers to develop a quality teaching and learning process. (p.13).

Nevertheless, with the situation we are now living in, the gap exposed in the citation becomes even more distant, not allowing children with limited resources, less privileged in terms of formal education, not to have the possibility of connectivity because they do not have the necessary technology to have access to knowledge. Besides, not to be left behind, to supply teachers with virtual tools and training in technology necessary to optimize their good performance.

Expósito, E., & Marmolear, R. (cited by CEPAL, 2020) in their study Virtuality and education in times of COVID-19 refer that the virtual or digital divide is one of the

problems that most affect this situation, due to the differences in access to technological resources and internet connection/connectivity, especially for Latin American countries (p. 4). They conclude about the implementation of digital and pedagogical resources that, faced with this pandemic situation, teachers have turned to the digitization of preexisting didactic material and the development of study guides (p. 18).

## 1.2. Statement of the Problem

Distance education in Panama was contemplated in our Educational Law N. 43 of 1995, page 85, only at the level of youth and adults. Therefore, the educational systems that train teachers at elementary, middle, and high school levels focused on face-to-face methodologies.

Panamanian teaching performance in 2019 was measurable based on aspects such as attendance, the application of teaching methods, appearance, ethics, and versatility in the classroom. Inside the classroom, everything had to be measurable, verifiable, visible so that the teacher could be evaluated at the end of the school year as an efficient teacher. The presential rules at the elementary school had specific restrictions, no electronic devices, it was the most common and the primary public-school teacher, who will be our reference, was not aware of the training in the technological area and the great advances that can be achieved through them.

It was not until the first case of COVID −19 occurring in the province of Panama, on March 8th, being a 40-year-old Panamanian woman who arrived from Madrid, Spain, that it was mentioned that the virus is generally transmitted from person to person.

Faced with this situation and a solution that is envisioned in the long term, without a cure and with a high degree of lethality, MEDUCA provides through Executive

Decree N. 564 of July 2nd, 2020, by the department of teacher training, massive recruitment of public-school teachers to receive different courses with different foundations and institutions, thus ensuring the advancement of a lurid virtual school year 2020.

Educa Panama | Mi Portal (2020) has offered, for the most part, through its educational page, courses, which are focused on three main characteristics: virtual classroom management, efficient school planning, and management of digital platforms. On behalf of the state, licenses are enabled on the Microsoft platform and thus was born MEDUCA 365 that manages a Microsoft Teams platform. Thinking of children without full access to these tools, the television programs "Conéctate con la Estrella" (Connect you with the star) were born, focused on expanding the teaching guides that appear on the page.

These combined strategies are the formula given to teachers as support for developing a strategy to save a school year almost lost due to the amount of time elapsed since its start in February 2020. Downloading the guides, watching the class on TV, and development and reinforcement by the teacher through the different virtual platforms, and social networks, the most used of all and the most accessible is WhatsApp.

By the end of the first quarter of 2020, according to the MEDUCA´s report. (2020). Initial statistics follow-up and monitoring in distance modality (VOL. 49), records that in the initial enrollment of primary education in the official dependency there were 45,635 in the Educational Region of Central Panama, at the beginning of the new school year in July 2020, but at the end of the first quarter by directors´ report of official

educational centers, in distance mode at the primary level, 49,239 teachers reported connectivity with their students.

In turn, they reported 1,822 students who did not communicate with their teachers at the end of the first quarter in October 2020. Teachers' unions are speaking out about the need to respond to this percentage of the student population in the Panama center area, which should not have connectivity problems.

*What is E-learning? Definition of E-learning, E-learning Meaning.* (s. f.), states that for children, not being able to communicate with teachers in person can be difficult, and they may lose interest in fumbling through their courses.  Donna J. Abernathy

Many sections of the country have poor internet connections that do not provide enough bandwidth for students to complete homework or connect to live video conferences. Furthermore, the internet is prohibitively pricey for certain families. Many children may not have access to computers or mobile devices with which to complete online classes.

To help with these challenges, professors should aim to limit the platforms on which they post assignments so that students can find and access them more easily. Schools and businesses with the financial means to do so can give much-needed laptops or mobile devices, and internet providers can aid by offering faster connections or lowering internet rates.

A series of questions arise with since distance education has been interpreted as virtual, technological, more in the context of world health condition that concerns us, distance learning is the big question that leads us to raise a current overview of the situation.

### 1.2.1. Statement of the Current Problem

The current situation that Panamanian education is facing, due to the pandemic, has generated social distancing, as well as insecurity as to the question of how the development of classes in the technological field will be. "New normality" is the reality to which we must best get used to it, and which will be our guarantee for the next few years in the face of a disease about which, scientifically, little is known.

In the approach to our problem, virtual education and teacher performance are presented as the main axes, which are important to define. Virtual education is defined as an educational strategy that facilitates interaction between students and teachers using technological means, eliminating the barriers of distance.

For Ponce (2005), professional teaching performance is the teacher's performance by his or her pedagogical competencies to guide and evaluate the teaching-learning process. (n. p.)

The lack of knowledge of all components of a virtual education program, the lack of accessible platforms, and the dissemination, to a certain extent, of false information about virtual environments, are some causes put forward by parents, who demands quality education in times of COVID19. The teachers lacked a clear awareness of the methodology, contents necessary in distance education, and the tools necessary for distance work in an effective and, most importantly, measurable manner.

The possibility of losing the school year due to the problem of not having technological tools available is overwhelming; however, government institutions and qualified people are committed to prepare modules, virtual classes, and televised education to continue interactive teaching in public schools, teacher-student virtually.

Problems of the divergence of opinions arise regarding the direction that "virtual education" should take, especially at the primary level, due to the playful activities that children in their early childhood should develop, the responsibility for which falls on the shoulders of teachers. According to MEDUCA. (2020, July), *Operational regulations for educational support in the distance learning modality, (*p. 7) the figures on the educational situation are: 631,156 students from official schools have been affected by the suspension of classes.

To compensate for this time, teachers at elementary schools are asked to prepare modules to that should be distributed to students as reinforcement.

The question was raised because the complaints about the effectiveness of the time spent virtually, the lack of interaction, and the inexperience of the teacher using this platform for most teachers. This brings us to the initial question. Does virtual education affect the performance of the Cirilo J. Martínez elementary public-school teachers in Pedregal, District of Panama during COVID-19? We will answer this question through the following questions:

- How does virtual education present challenges and opportunities in the performance of elementary school teachers?
- How is the teacher's performance modified by virtual lesson planning?
- How does the teacher's performance improve through continuous virtual training and coaching?

## 1.3. General Assumptions

## 1.3.1. Research Hypothesis

H1: Virtual education has a significant impact on the performance of the

Cirilo J. Martínez elementary public-school teachers in Pedregal, District of

Panama during COVID-19.

H2: Virtual education does not have a significant impact on the performance of

the Cririlo J. Martínez elementary public-school teachers in Pedregal, District of

Panama during COVID-19.

## 1.4. General Objective

- To determine how virtual education affects teachers' performance at the Cirilo
  J. Martinez elementary public school in Pedregal, District of Panama during
  COVID-19.

## 1.5. Specific Objectives

- To identify the percentage of the Panamanian population of elementary school
  teachers who express difficulty in the use of educational tools and platforms.

- To examine the performance of teachers in virtual planning at the elementary
  public school.

- To demonstrate how the performance of Panamanian teachers is modified
  through training in technological tools and educational platforms appropriate for
  the elementary public school in Pedregal.

## 1.6. Delimitation, Scope, or Coverage

Our study is delimited among elementary school teachers at public schools at

the Cirilo J. Martínez elementary public school in Pedregal, Panama City, achieving

results in terms of the ranges of:

- **Age:** We fluctuate in generational ranges of decades until we reach the point of
  50 years or more.

● **Sex:** In terms of this factor, 78% were female and 22% male.

There will be 55 teachers from Cirilo J. Martínez public elementary schools in Pedregal, Panama City.

Qualitative research will consist of collecting accurate data through questionnaires and surveys using Google Forms.

## 1.7. Restrictions and Limitations

The possible limitations that will be presented to determine how virtual education affects the teaching performance at the Cirilo J. Martinez elementary school during COVID-19 could be due to the following reasons:

● Unavailable studies concerning the chosen topic due to its recent novelty concerning Virtual Education and Teacher Unemployment in COVID-19 times.

● Time is a critical factor for elaborating the project, making collaborative work imperative for completing the research.

● The lack of experience in developing research work, since, being a current situation, we are in trial-and-error stages.

● Lack of long-term sampling data to corroborate our current study.

## 1.8. Project Justification

This research arises from the need to have teachers prepared in the virtual area so that our students can receive an effective education, as indicated by Escribano H. (2018) in his writing. The performance of the teacher as a factor associated with educational quality in Latin America, stating that the teaching performance, as an eminently human factor, is essential to act professionally to meet the needs of the time and society in question, and promote with the necessary conviction and responsibility

training and learning for life (s.p.).

### 1.8.1. Importance

This research arises from the need for teachers to be able to continue receiving training and follow up on their development virtually not only during the COVID-19 crisis but also to be considered as a future option within the institutional training plan during the training period before the beginning of classes, as we can see in MEDUCA. (2021). *Summer Seminars 2021 | Educa Panama My Educational Portal*.

Teachers need to develop the ability to reinvent and reform themselves by seeking new teaching strategies. It is, therefore, necessary that the elementary public-school teacher, learns through this study about the tools and applications that can be used according to the grade in exercise. Knowing beforehand the tools he/she needs to learn, the teacher will be trained, taking the courses corresponding to his/her needs, within his/her planning, therefore, the adequate tools will be used with more effective teaching strategies in the virtual environment, allowing the teacher a better performance within this new system.

### 1.8.2. Contributions (benefits)

In this research project, we intended to provide teachers a handbook containing clear teaching planning templates for virtual lessons as solutions to frequent technical problems that arise during a virtual class development. It includes examples of time allocations for each class activity and other English teaching strategies for digital resources.

# Chapter II: Theoretical Framework

## 2.1. Research Frame of Reference

Our frame of reference is based on the document shared in the book by Elizalde, M., Urpi, C. Tejada, M. (2012). Diversity, Parent Involvement, and Quality Education: Needs and Possibilities of Homeschooling where they relate the reasons why some parents prefer to use the homeschooling system. Although homeschooling is an innovative option in many of our countries, it has been practiced for years in developed countries for religious, mobility, and economic reasons.

It is interesting how through this time of the pandemic, learning has had to be done asynchronously, reinforcing what has been learned synchronously. Some current advantages of in-home virtual studies are bringing the fact of not having to move from one place to another. Also, for teachers to have greater flexibility of time to perform asynchronous activities with their students, they can develop a sense of greater independence.

Even before COVID-19 Pandemic, Homeschooling had turned into virtual schooling according to the official website of the U.S. Institute of Education Sciences, (Cavanaugh, 2004, p. 39 as cited on ERIC). "The growth in the number of students learning online and the importance of online learning as a solution to educational challenges have increased the need to study more closely the factors that affect student learning in virtual schooling environments."

Today during COVID – 19 the article (2020, 11 September), *Pros and Cons of Remote Learning*, distance learning had been the way students can learn at their own pace. They can focus on the assignment and finish it so they can go on to other tasks

because they have work set for them. Through distance learning students develop deeper problem-solving skills spending more time delving into the facts, and even coming up with their own response increasing on their confidence and self-esteem.

Education has taken an unexpected turn because of the lockdown caused by COVID-19; in which the teachers and students were challenged to adapt themselves to new ways to teach and to be thought.  Without any preparation time about the use of technology, nor economic resources for the acquisition of the necessary tools for their online classes in some homes, however, for other homes, it has been an opportunity for development in the educational field of new skills. The role of the teacher is crucial for the student's learning-teaching to be effective; because teachers must have the corresponding training in technological tools so that the knowledge imparted can be transmitted fluently and efficiently without any type of distraction.

During this epidemic, O'Reilly, D. (2020, 9 September). *Definition - What is a Virtual Classroom?* LearnCube, states that the tools used in online classes (virtual classes) have revealed that the teachers and students were able to interact much more collaboratively with the online whiteboard rather to relying just on video/voice. These resources have enabled teachers with instant access to relevant, rich, or structured lesson materials giving place to a more dynamic class. A teacher's tools enable him or her to exert control over the classroom.

However, how it describes in What *is E-learning? Definition of E-learning, E-learning Meaning*. (s. f.), technology being rapidly progressing and many learning systems innovating and advancing, it is now embraced by the masses. The introduction of computers was the basis of this revolution and as time passed people started getting

hooked to smartphones, tablets, and many other "smart" devices. These devices now have an important place in classrooms for learning. Books are slowly and gradually getting replaced by e-books (electronic books) and other electronic educational material like optical discs or pen drives.

Area-Moreira (2016) The Models of educational integration of ICTs in the classroom suggested that teachers' knowledge of technological tools becomes a "leverage" factor at this time as it can condition students to have the competencies to learn through technology. This book discusses the influence of factors such as gender, years of experience, educational stage, digital competence, and the degree of use of technological tools in their daily lives. (n.p.)

Mhlanga (2020) shared in his essay, that countries like South Africa, also confirmed that even though they were implementing digital technology in education, their process was slow but because COVID-19 pandemic they implemented a toll-free educational STEM lockdown digital school, using a platform named Ms. Zora (2020); where learners gain access to unlimited and free online education during the lockdown. They recruited more than 34 teachers who worked in both public and private schools offering live stream lessons through social media pages. These platforms not only provide a medium for teaching but also have resources for teachers and parents to guide students' learning more interesting.

The government, in various parts of the world, has responded to the need for virtual education by opening platforms that facilitate the technical training necessary for the good performance of teachers in times of COVID-19.

### 2.2. Theoretical Foundation

Ossa, G. (2002), in his book educational trends for the 21$^{st}$ century, outlined that the new virtual competencies will mark the knowledge of the coming years to which we have been pushed by COVID-19. In his paper, he cited "The virtuality of knowledge does not mean less knowledge or worse knowledge. Nor does it imply a second-grade or second-rate knowledge."

We will rely on projects such as Harvard University's Project Zero, which reaffirms the need to create a new curriculum that teaches our students to think and relate subjects to everyday actions. Dr. Guillermo Cardona Ossa refers to learning by using technological tools to generate virtual learning environments.

### 2.2.1 Panamanian Educational System. History and Evolution

### 2.2.1.1. Beginnings:

Escarrola (quoted in Alba, Manuel María, 1948) narrates the bibliography of Manuel Hurtado, who is considered the father of Panamanian education and from we summarize from the book Lecturas de Instrucción Pública. Revista Épocas December the following lines, finding the following facts:

In 1860, Manuel José Hurtado was elected member of the Municipality of Panama, he dedicated himself to teaching and began his work at the head of Public Instruction in 1868. By November 3, 1866, Panama issued Law 27, which established the first public school. On January 1, 1868, Civil Engineer Manuel José Hurtado took charge of the first Public School of the State of Panama.

The first section of this first public-school taught reading, counting, discipline, and politeness; the second section taught a broad course of arithmetic, Spanish

grammar, and geography; the third section taught higher arithmetic, elements of geometry, syntax, and the most elementary elements of the English language; the fourth section taught Latin and the knowledge necessary for bookkeeping.

**2.2.1.2 Formalization:**

(The president's office, 2004) Law 47 of 1946; is nowadays in Panama, the foundation of its educational system, the law established that education is a human right for children, adolescents, and youth without discrimination, also the law itself has undergone several reforms since its inception, however, we would like to nail in this space, to the signs of legality and formality of virtual education,(The president´s office, 1995) Decree 34 of July 6th, 1995, which repeals, modifies and adds modalities, for youth and adults,  not ignoring that by these days were called distance learning.

**2.3 Theories of Virtual Education, Teaching Performance, and Impact of COVID-19 Education**

**2.3.1 Theory of Virtual Education**

The foundation of our research is based on Michael Graham Moore's (2018)"The theory of transactional distance." According to Moore, the transaction developed between teachers and students in distance learning considers 3 factors: Dialogue, structure, and learner autonomy. Other support ideas from the same author come from his book "Handbook of distance education" Moore (quoted in Peters, 1998, p. 42) said that the transactional distance theory provides a convincing explanation of the enormous flexibility of this form of academic teaching. It also provides an insight into the pedagogical complexity of distance education.

The objective of every teacher is to plan classes considering the three factors of

the transactional theory: Dialogue, structure, and autonomous learning. By giving the teacher more opportunity for individual work and putting into practice the knowledge imparted interactively, the teaching-learning process will fulfill its objectives. Our viewpoint about an effective teacher is not the one that provides a large amount of information but is the one that encourages critical thinking to develop with a structure, with the basics, with the important information new theories, and knowledge to enhance in a changing world.

### 2.3.2. Theories of Teaching Performance

Covarrubias and Mendoza (2013) who developed through their essay in Chile, called: The theory of self-efficacy and teaching performance, in which we are a focus, the point on the fact that our teachers need to be effective and updated, especially in this new environment. They called it the theory of self-efficacy, which "defines efficacy expectations as the beliefs that the person has about his capabilities in a specific situation to perform certain actions that allow him to achieve a certain level of performance."

The effectiveness and improvement of our teachers depend on what they expect of themselves. Opportunities to achieve are in any area of performance but the teachers most believe in the capabilities God has given them. Teachers believing in their capabilities is the way to grow technologically to be better than they are now. Teachers need to have self-confidence and personal resources available to improve acquiring new abilities in virtual education.

SERTV (2020) published that Panama's national multimodal education strategy includes the strategic axes of professional development of teachers in digital skills, the

evolution of the traditional curriculum to a digital curriculum, and technological infrastructure and equipment. It also includes efforts of programs aimed at achieving one hundred percent of internet coverage nationwide.

On July 20th, 2020, the government of Panama made available the ESTER platform, which allows general reports where the teacher observes the student's progress, allowing the corresponding interventions for better academic development.

### 2.3.3. Theories of the Impact of COVID-19 on Education

The finding agrees with an earlier assertion by (Onyema,2020), that the Coronavirus pandemic created multiple problems for the education sector leading to decreased education opportunities for economically marginated learners and those in rural areas. Also, factor analysis, found that poor digital skills, school policies, digital devices, poor electricity, unavailability and accessibility, network issues, inadequate facilities, lack of training, lack of funding, resistance to change, etc. are major barriers for online education during the COVID-19 pandemic school closures.

It is a reality that we cannot escape. Many factors interfere in the improvement of teachers in terms of their performance in virtual education, but the greatest of them all is the resistance to change.

### 2.4. Virtual Education History in Panama

### 2.4.1. Virtual Education

We rely on the work of Rafael Andrés Nieto Göller, (2012) Virtual education or the virtuality of education, who concludes the following:

"What we are sure of, is that the internet, with the virtuality of education,

has been, as was the radio, television, cinema, teletype, fax, personal

computer, and a host of countless technical and technological advances, a paradigm shift. Change whose paradigm will be focused more on creativity, innovation, strategies, methodologies, behaviors, and behaviors of both those who teach and those who learn, to achieve proposals for virtual, open, and distance education" (p. 147).

According to (Universidad Tecnológica de Panamá, 2020) In 1994, the Internet was born in our country, but virtual education is a topic that today we observe more frequently in our studies. In Panama, virtual education has been even more accepted among teachers and students. The flexibility that it offers in terms of time, allows the incorporation of students who combine their studies with other responsibilities. Virtual education is also considered a modality that takes over traditional education. With this pandemic, we are facing the fact that we have teachers from official educational centers teaching virtual classes through video calls, WhatsApp, Zoom, Skype, email, etc.

**2.4.1.1 Laws Accepting Virtual Studies in Panama**

Due to the current situation of the country and the educational system of the Ministry of Education, MEDUCA, implemented virtual class study methods, but in Panama until May, when the government announced that classes would resume, there was no law requiring the teacher to teach virtual classes.

It was not until July 28th, 2020, when Executive Decree No. 564 of July 2nd, 2020, was published in the Official Gazette, which resolves the establishment of the 2020 school calendar at a distance, not "face-to-face, on a transitory basis, in official educational centers."

MEDUCA, (2020) in its article 1. resolves "To adopt and regulate the rules of conduct and coexistence guidelines for distance classes in the virtual modality, so that its application is mandatory for users of virtual environments in official and private educational centers,"

Article 2: is even more specific regarding the roles of parents and teachers, duties, rights, prohibitions, and sanctions related to the use of virtual environments. Graphic references of the application of Executive Decree No. 564 of July 2, 2020.

**Table 1**

*Laws accepting virtual studies in Panama, applicable to Pedregal, District of Panama.*

| Tool used | Description | Connectivity | Platform | Conditions of use | Target group |
|---|---|---|---|---|---|
| Television | Teachers deliver live classes on TV for 30 minutes each session. | Offline | Television | Free | Primary and Secondary School |
| Radio | Teachers deliver classes recorded for 30 minutes each session. | Offline | Radio | Free | Primary and Secondary School |
| Media | Teachers deliver synchronous and asynchronous classes, using different social media and free platforms | Online | Computers  Tablets  Smart phones | Paid | Primary and Secondary School |

Source: Ibáñez, Parker, Rios, February 2021

**2.4.1.2. Impact of Coronavirus Pandemic in Panama's Education**

Panama, according to the Ministry of the presidency, (2021) the executive decree N. 25 of January 14th, 2021 rules, and regulations are set for new scholars' period facts as " That the proposals submitted by the Council "Permanent Multisectoral

Commitment to Dialogue for Education" (COPEME), including the prioritization of 5 public policies, adopted by the Ministry of Education as strategies to address the impact of the crisis caused by COVID-19 .The main objectives of the project are: Educational Policy for Distance Education; Proposal for a Prevention and School Retention Network; Protocol for Biosecurity, Risk and Associated Factors; and the Protocol for the Development and Implementation of Technological Platforms. "

Article 2 states: "Implement for the first quarter of the school year 2021 the distance education modality, to guarantee the right to health and education. ".. organize contextualized strategies such as tutoring, home visits, work with parents and guardians, delivery of material, educational support by radio, television, technological tools, and other available resources (p. 3).

## 2.5. Conceptual Framework

The conceptual framework according to Bas Swaen, (2015) illustrates what you expect to find through your research. It defines the relevant variables for your study and maps out how they relate to each other.

Regional, P., (cited in McGaghie et al. 2001) in his Conceptual framework development handbook defined conceptual framework as "sets the stage" to present the research question that drives the investigation being reported based on the problem statement. The problem statement of a thesis gives the context and the issues that caused the researcher to conduct the study.

Virtual

Cambridge Business Dictionary (n.d.) points out that the virtual is used to describe something that can be done or seen using computers or the Internet instead

of going to a place, meeting people in person, etc.

Education

Cambridge Business Dictionary (n.d.) points out that education is the process of teaching or learning, especially in a school or college, or the knowledge that you get from any educational institution. Education is also the study of methods and theories of teaching.

Virtual Education

Nieto Göller (2012) Virtual education or virtuality of education. The Journal History of Latin American education, virtual education -open and distance- "is emerging as a panacea to these challenges, by offering to expand access opportunities to marginalized or neglected social groups, as well as other social groups whose space-time needs so require, ensuring and improving the quality of educational services provided, applying technological developments to the teaching-learning processes and stimulating innovations in and of contemporary educational practices, in a holistic." (p. 139)

Harvey, L., (cited in Tavakol, 2012 p. 152), Analytic Quality Glossary, Quality Research International States, define virtual education as an instruction in a learning environment where teacher and students are separate by time and space and the teacher provides course content through ICT based methods such as the Internet, multimedia resources, and videoconferencing. Students get the content and communicate with the teacher via the same media.

Performance

Andriani S., Kesumawati N., Kristiawan M., (cited in Susanto, 2016), in the international journal of scientific & technology research volume 7, July 2018, define that

performance as something that someone or group does to achieve a specific goal. (p. 20)

Teacher's Performance

Andriani S., Kesumawati N., Kristiawan M., (2018) Government Regulations No. 19 of 2005 about the National Education Standards, define that teacher's performance (...) is the competence of a teacher that has 4 competencies such as pedagogic competence, personality competence, professional competence, and social competence. (p. 20)

We will define two of these competencies according to our investigation and these are the following:

- Pedagogic Competence

Qodriyah, (2016) An Analysis of Teachers' Pedagogical Competence in Teaching English for Young Learners at Nara Islamic School Cirebon, define pedagogical competence as a specific competence that distinguishes teachers from other professions (Jahiriansyah et al., 2013; Retnowati, 2013), which demonstrates the ability of teachers to organize learning material so it can easily understand by the learners (Rosnita, 2011).

- Professional Competence

Definitions.net. STANDS4 LLC, 2021. Web. Feb 21, 2021, define professional competence as the capability to perform the duties of one's profession or to perform a particular professional task, with the skill of acceptable quality.

Technological Resources

Apletton L., & McColgan (2015) Physical and technological resources define technological resources as those that are not in a physical form but can be in the form of software and experience. The technological resources are tools such as computer hardware (...) computer monitors, modems, and routers, (...). These resources need to be managed.

Asynchronous

Great Schools Partnership, Education Writers Association, & Nellie Mae Education Foundation. (2013, 29 August). *Asynchronous Learning Definition* applied the term asynchronous to various forms of digital and online learning in which students learn from instruction—such as prerecorded video lessons or game-based learning tasks that students complete on their own—that is not being delivered in person or in real-time.

Synchronous

Great Schools Partnership, Education Writers Association, & Nellie Mae Education Foundation. (2013, 29 August). *Synchronous Learning Definition* applied the term synchronous to the form of televisual, digital, and online learning in which students learn from instructors, colleagues, or peers in real-time, but not in person. For example, educational video conferences, interactive webinars, chat-based online discussions, and lectures that are broadcast at the same time they are delivered would all be considered forms of synchronous learning.

COVID-19

The 2019–2020 Novel Coronavirus (Severe Acute Respiratory Syndrome Coronavirus 2) Pandemic, (2020 May 22)., defines Coronavirus as a large family of

viruses that can cause a countless spectrum of outbreaks, ranging from the common cold to more serious conditions such as Middle East Respiratory Syndrome (MERS) and severe acute respiratory syndrome (SARS). Novel Coronavirus (CoV) is a new type of coronavirus that was not previously identified in humans. Novel Coronavirus is what we call COVID-19 today.

During the research of terms and definitions, we have become more oriented about the real role of teachers since being in the middle of the COVID-19 pandemic. The material has been reorganized from the beginning of teaching as a profession and upgrading the methodologies to virtual environments to create appropriate learning situations.

E-Learning

What is E-learning? Definition of E-learning, E-learning Meaning. (s. f.), The Economic Times defines E- Learning as a learning system based on teaching using the tools that are given by electronic devices and resources. This type of teaching can be done in or out of the classrooms, but the use of computers and the Internet forms the major component of E-Learning. It can also be known as a network enabled transfer of skills and knowledge, and the delivery of education is made to many recipients at the same or different times.

Distance Learning

Simonson, M. and Berg, Gary A. (2016, 7 November). *Distance Learning, Encyclopedia Britannica* defines distance learning as a  form of education in which the main elements include physical separation of teachers and students during

instruction and the use of various technologies to facilitate student-teacher and student-student communication.

Virtual Class

Virtual class is what it calls virtual classroom. Bernazzani, S. (2020, 5 May), In her article *What is a virtual classroom?* in her article defines virtual classroom as an online teaching and learning environment in which students and teachers can present teaching materials, interact, and communicate with one another working together in groups. A virtual classroom is distinguished by the fact that it takes place in a live, synchronous context. Although online education may consist of pre-recorded, asynchronous material, virtual classroom settings require live interaction between instructors and students.

# Chapter III: Methodological Aspects

In this chapter, the researchers aim to find out if the facts collected can be tested with the hypothesis in this quantitative study.

According to (University of Southern California, 2021) a quantitative approach is "a research study that classifies features, counts them, and constructs statistical models in an attempt to explain what is observed." This approach is presented in this chapter of the methodological framework: to nail the questions and support the hypothesis with an answer based on facts.

According to the journal Thesis of Investigation. The methodological framework, (cited in Franco Y., 2011), the methodological framework is defined by:

The set of actions aimed at describing and analyzing the background of the

problem posed, through specific procedures that include observation and

data collection techniques, determining "how" the study will be conducted,

this task consists of making the concepts and elements of the problem we

are studying operational.

After stating and describing our problem about the development of teachers in virtual education, which consists of the development of elementary school teachers in Pedregal and having observed their evolution in the virtual methodology used to prevent the spread of COVID-19, the study has sought to test our hypothesis through quantitative research. The research is based on the number of teachers who present difficulties in the use of technological tools in their virtual teaching performance.

The objective is to describe the fact of the transformation of the Panamanian teacher's performance from face-to-face education to the virtual education environment,

during this worldwide event, that was primarily leveled as scientific and health issues, and its management, which impacts the different areas around the planet, and highlighting the capabilities and needs they had at the pandemic time. This situation has left representative methodological traces for its educational confection to raise the design of our research question: How does virtual education affect the performance of elementary school teachers in Pedregal, District of Panama during COVID-19?

## 3.1. Type of Research

The focused scope of the study is descriptive, according to (Sampieri, 2011), he states that a descriptive scope:" seeks to specify the properties, characteristics, and profiles of individuals, groups, communities, or any other phenomenon under analysis." Sampieri´s statement determines whose purpose is to identify the teaching population that shows the difficulty in the use of technological tools, besides, to examine the performance of teachers in virtual planning at the elementary public school.

### 3.1.1. Data Collection Instruments

The approach of the methodology of investigation has an experimental design, which is called intervention. The intervention consists of allowing the observer to explain how virtual education affects the performance of teachers, based on the survey technique, reflecting the reality of elementary school teachers.

## 3.2. The Operational and Conceptual Definition of Variables

It is important to make a parenthesis to clarify our concept of variables as defined by different authors as attributes and characteristics, qualities, or properties capable of being measurable by adopting different values.

Reynolds, (1986) defines an operational variable as "the set of procedures that

describes the activities that an observer should perform to receive sensory impressions, which indicate the existence of a theoretical concept to a greater or lesser degree" (p. 52). The procedure implemented was designed with the idea of determining honest answers from teachers, to achieve full knowledge of how much it has affected the teacher's performance in this stage of virtual education; and to measure in some way their knowledge or lack of knowledge of the tools used in this type of methodology.

Based on this same definition of an operational variable, it has been provided through this study, the narrative of the follow-up done over the training to the elementary school teachers in the Pedregal area, that was given by the government and ONG´s, and how virtual education impacts on social-economic, physical, and mental health reality that they were facing due to the Covid 19 pandemic.

**Table 2**

*Operationalization of Variables*

| VARIABLES | CONCEPTUAL DEFINITION | DIMENSIONS | SURVEY INDICATORS |
|---|---|---|---|
| Virtual Education | Tavakol (2012) It is an instruction in a learning environment where the time separate teacher and students and space and-or space and the teacher provide curse content through ICT based methods such as the Internet, multimedia<br><br>resources, and videoconferencing (p. 152) | Technological organization<br><br><br>Software<br><br><br>Hardware | Tools<br><br>Platforms<br><br><br>Zoom, WhatsApp, MS Teams, social media.<br><br><br>Cell phones, tablets, computers. |

| Teacher Performance | Castro (2015) teacher performance is the mobilization of professional intellectual resources to use certain learning objects through relevant didactic methodologies with ethical professionalism in a defined context. (p.2) | Professional competences<br><br><br><br>Technical limitations | Technological training. Planning online Class length. Knowledge of tools for virtual environments.<br><br>Accessibility and Connectivity. Lack of technological equipment. |
|---|---|---|---|
| COVID-19 | Coronavirus 2019 (COVID-19) is defined as an illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV) | Multiple effects on teacher´s performance<br><br>Professional challenges | Degrees or levels<br><br><br>Reinventing and adapting teaching strategies for the digital environment. |

## 3.3. Population

To understand the concept of population, we rely on (Ander-Egg, 2011, pp.106), who defines it as the "set of elements of which we want to know or investigate some of its characteristics."

The study was released within public primary school teachers, in the public sector in the Pedregal area in the province of Panama. Fifty-five teachers responded to our survey, and they were taken voluntarily and without any mental preparation to maintain the legitimacy of the answers in the survey content. It was conducted randomly,10 months after the educational restrictions, which are only one year in the

world. The information provided by the teachers is reliable to perform safe research functions.

### 3.3.1. Sample

The University of Cordoba, (2014) refers to the sample as "key informants: individuals whose position or characteristics allow them to provide information that other people do not know or would give in completely."  In support of the above statement, since the primary school teacher, a fundamental part of this study has required a great effort to reinvent himself in the methodology of virtual teaching. A situation in which the teacher and even as a nation, were not prepared to move to the virtual educational change. Two thousand twenty remains as the rise of the era of even more recursive teaching practices, with imagination and effort.

### 3.3.1.1 Sample Type

Definition, characteristics, and objective of the experimental method define the explanatory survey, which is the relationship between the characteristics of the population and the degree to which these are related to a given phenomenon. It poses a variable that is associated with another, so a working hypothesis must be measured to identify those factors that modify a given phenomenon.

This type of survey helps to determine the causal relationships, being virtual education, which is the independent variable, and the effect, being the performance of teachers, which is the dependent variable. Through this type of survey, it's been possible to explain from the beginning of the research the analyzed reality.

Dictionary of the Royal Academy of the Spanish Language, (2020) defines the survey as "A set of standardized questions addressed to a representative sample of

social groups, to ascertain states of opinion or to learn about other issues that affect them." Based on the previous definition of the survey, the sample type corresponds to the study, overall, in this situation of COVID-19 since it was based on a sample of the total population, referring only to the category of primary school teachers and official schools in the Pedregal sector.

### 3.3.1.2. Sampling Methods

As stated above, we designed the survey, guiding the population (teachers) from the macro (general questions) to the micro (specific questions).

The type of question was closed, clear, and with a simple vocabulary, non-unambiguous, brief, and allowing the object of study to feel comfortable and encouraged to collaborate. The survey was 100% spontaneous without inducing the teacher to force answers and 100% virtually, a product of the collaboration of the teachers' WhatsApp groups.

It took three days between the preparation and implementation of this research. The tool was elaborated in Google Docs. in the form of a questionnaire. The questionnaire has 15 questions which were distributed by WhatsApp groups reducing the usual costs of time and money that generate surveys to researchers.

### 3.4 Sources of Information

The first type of source being used at the beginning was the primary source, described by The University of Alcala (as cite on Types of informational source,2018) as follows: Primary documents such as books, scientific and entertainment magazines, newspapers, journals, official documents of public or private institutions....) Being in about this disease due to news coming from other parts of the world, part of this

research reflects the guidelines of online journals, other documents that were published during the pandemic in Panama.

The best sources for this investigation have been the pages of the educational boards of different countries, such as South Africa, Panama, the United States, among others; from which was found some similarities in the guidelines given at the educational level.

Then based on different articles on the web pages and thanks to the secondary source we can see worldwide news where most countries are giving virtual classrooms because of the pandemic. The format being used is the general source in which virtual classrooms are a broad and worldwide topic.

### 3.5. Data Collection Instruments

Arteaga, (2014) according to his page defines that the instrumentation of data " (...) is in principle any resource that the researcher can use to approach the phenomena and extract information from them." The survey, as an instrument used, is an invaluable resource that transmits through social networks the feeling of the primary level teachers at a public school during this time of COVID-19.

Hernández Sampieri, (2014) defines the Likert scale as the "Set of items that are presented in the form of statements to measure the subject's reaction in three, five or seven categories,"(p. 238). In the research, the Likert scale was used where the number of questions offered to the teachers surveyed was complied with.

### 3.5.1. Surveys

A set of 15 closed questions were distributed to obtain the necessary information. The survey was composed in the following format:

Title: Survey for Elementary School Teachers

Categories:

I.     Public School Elementary School Teacher Data.

     For example, Age, Gender.

II.     Data Regarding Knowledge of Technological Tools.

     For example: Which of these e-learning programs are you familiar with?

III.     Data Regarding Teachers Performance.

     For example: Which factors do you consider affect your good performance as a teacher?

IV.     Data Related to Teacher's Planning.

     For example: Do you know what content should be included in the planning of a virtual class?

V.     Data Concerning the Teacher's Virtual Education.

     For example: Do you believe that your technological training is the responsibility of...

VI.     Data Regarding COVID-19 and Education.

     For example: At what level do you consider your teaching performance has been affected during COVID-19?

# Chapter IV: Presentation and Analysis of Results

## 4.1. Analysis of the results

From the findings gathered in the results, we seek to confirm or refute the hypotheses of the thesis, which is as follows:

- Virtual education has a significant impact on the performance of elementary public-school teachers in Pedregal, District of Panama during COVID-19.

- Virtual education does not have a significant impact on the performance of elementary public-school teachers in Pedregal, District of Panama during COVID-19.

These results agree with the ideas expressed by different authors, among which the following are mentioned:

Covarrubias and Mendoza (2013), who through the work sustains that a person's expectations of success on a certain issue, allows them to reach the desired level. Area and Guarro, (2012) state that the economic and cognitive constraints limit the learning methodology employed by teachers who lack effective ways of teaching in virtual environments.

The measurement instrument used rescued our objectives, which are as follows:

- To identify the percentage of the Panamanian population of elementary school teachers who express difficulty in the use of educational tools and platforms.

- To examine the performance of teachers in virtual planning at the elementary public school.

● To demonstrate how the performance of Panamanian teachers is modified through training in technological tools and educational platforms appropriate for the elementary public school in Pedregal.

### 4.1.1. Survey

**Figure 1:**

*Age*
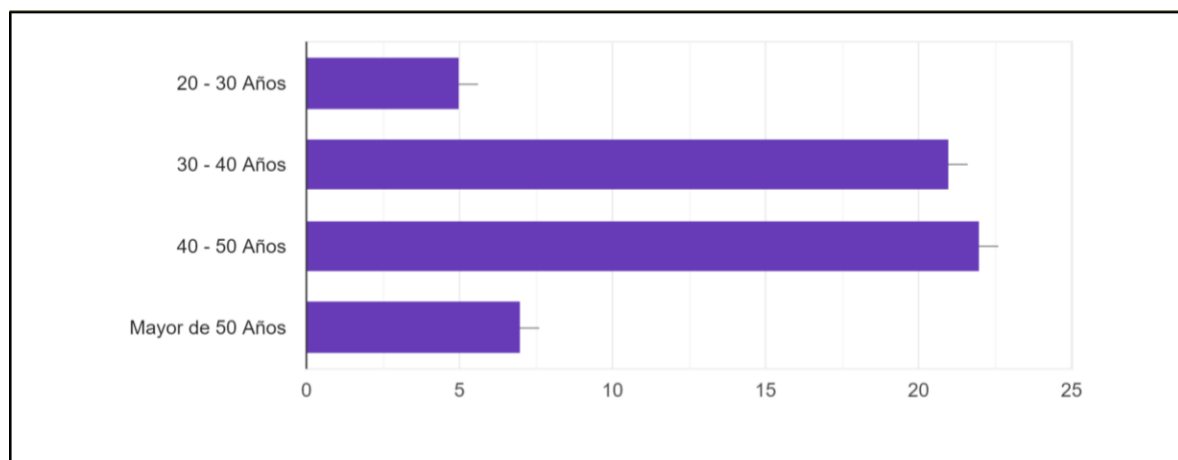
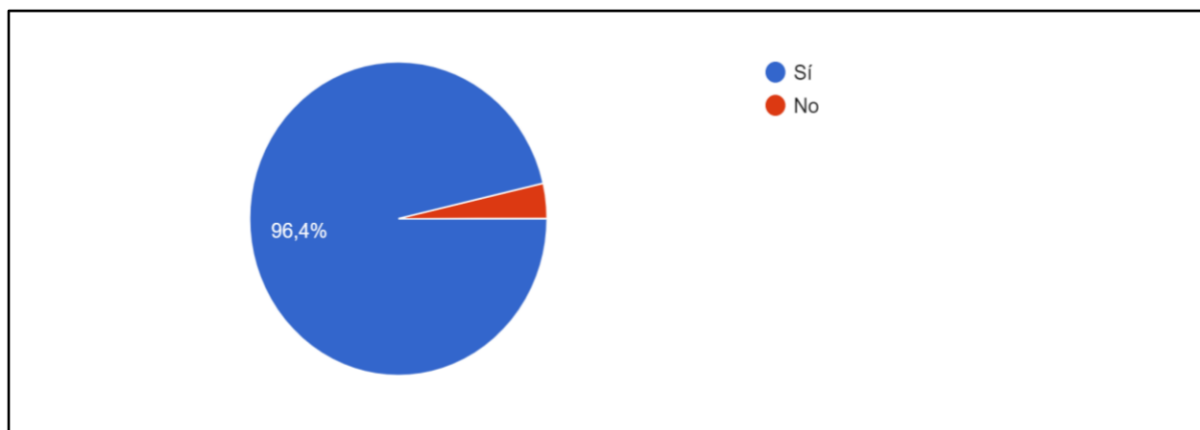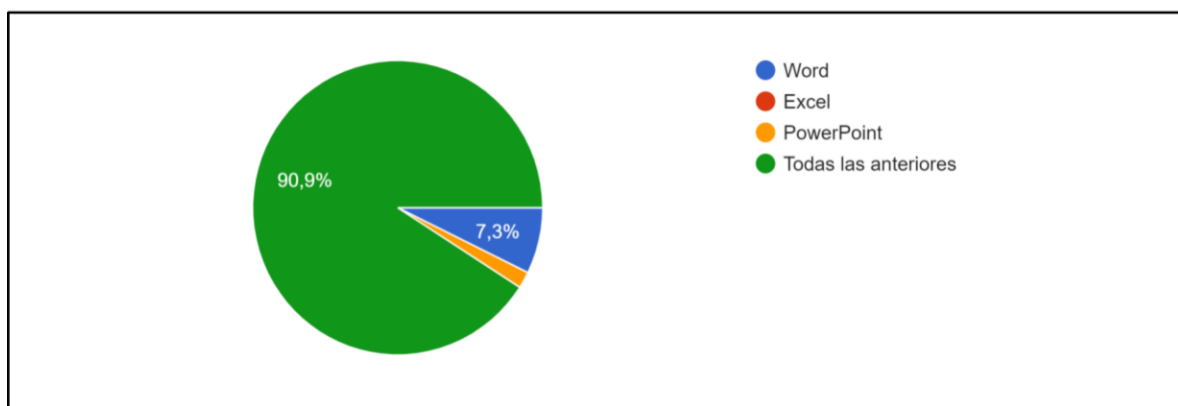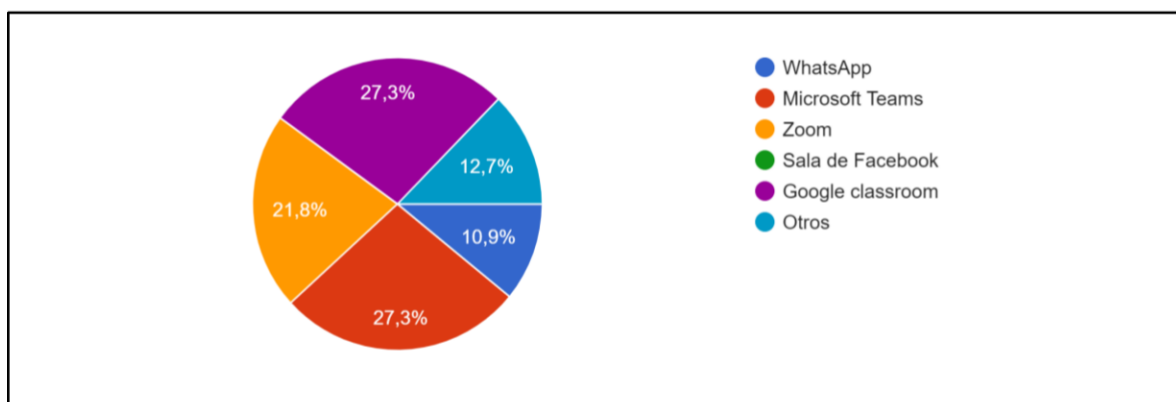

Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 1 shows that teachers' average age is between 30 and 50 years old.

**Figure 2:**

*Gender*
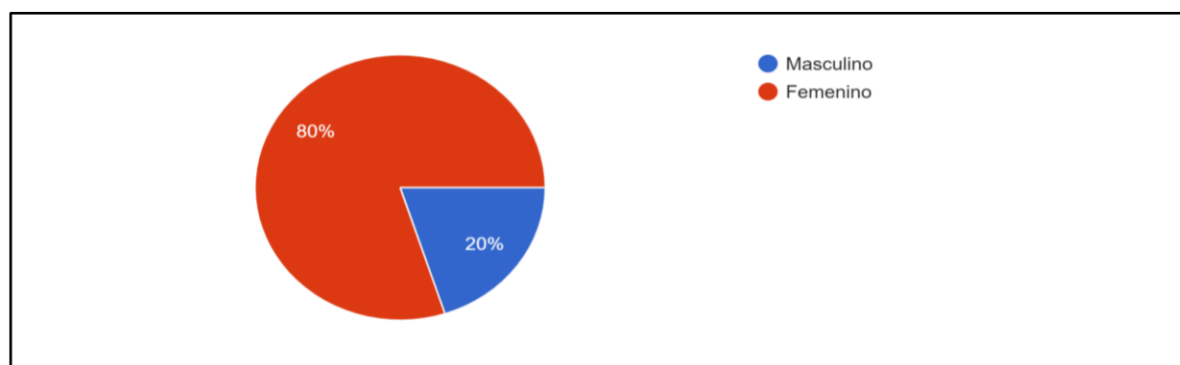


Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In this figure, shows that the female level is more predominant in the process of educational learning than the male.

**Figure 3:**

*Years of experience*
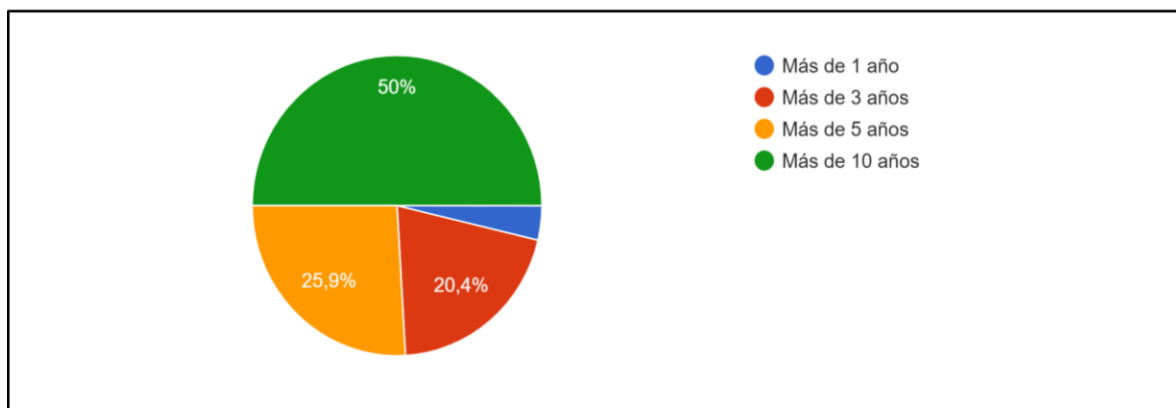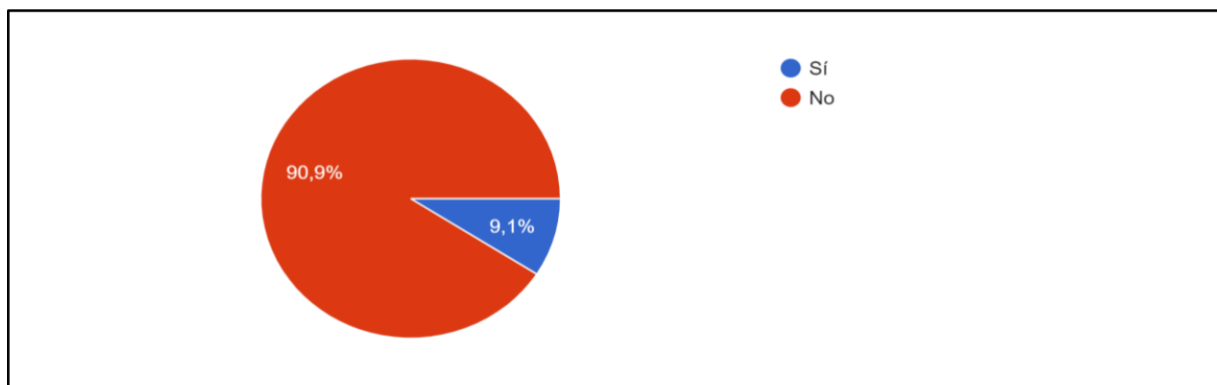


Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* Figure 3 shows 27 teachers above 10 years of experience performing class as primary school teachers.

**Figure 4:**

*Do you have technological tools at home?*
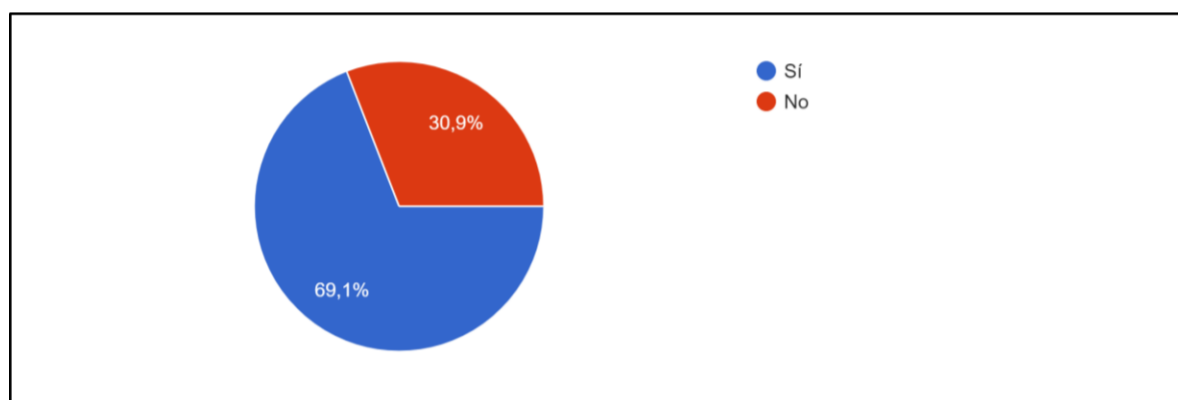


Source: Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 4, 53 teachers at primary school have technological tools at home, and 2 teachers, which are the minority, do not have technological tools at home.

**Figure 5:**

*Which Microsoft Office programs do you know?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In this figure, 50 teachers are fully updated and have all the knowledge of Microsoft Office programs.

**Figure 6:**

*Which of these e-learning programs are you familiar with?*
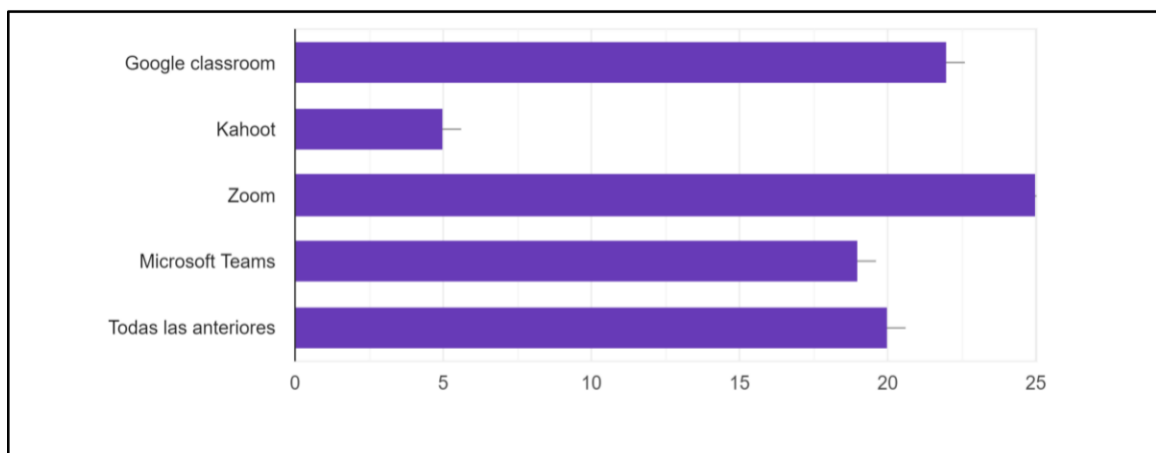


Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021. *Note:* In

figure 6, Zoom is one of the e-learning programs in which teachers are identified, followed by Google classroom, However, 20 out of the 55 teachers answer about their knowledge of all e-learning programs.

**Figure 7:**

*Which tools do you prefer to use in your virtual classroom?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* This figure shows tools that teachers in public elementary Pedregal schools use in their virtual classes.

**Figure 8:**

*Do you feel intimidated by the new technology requirements in your school?*
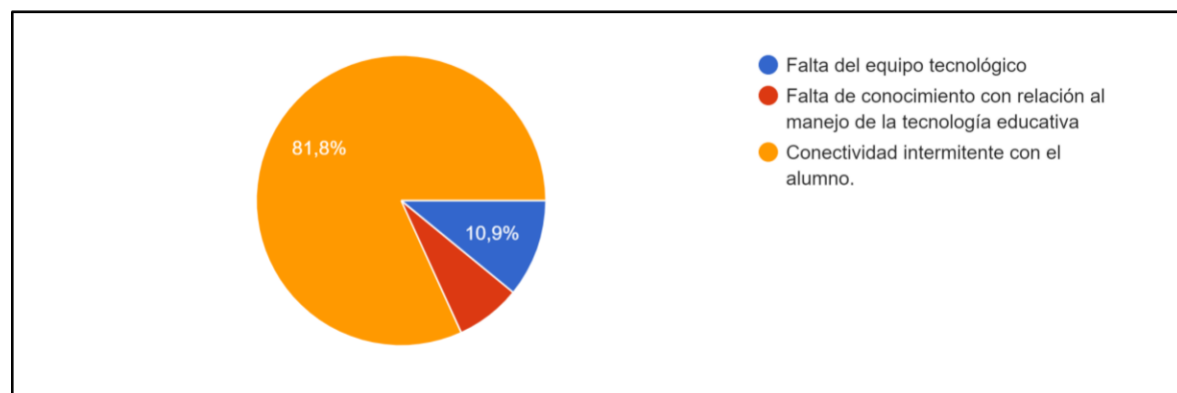


Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 8 shows 90.9% of primary teachers that corresponds to 50 teachers that feel unintimidated by using technology and 9.1% correspond to 5 teachers that feel intimidated by using technology in their school.

**Figure 9:**

*Are you familiar with submitting assignments and planning on the platforms of your school?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* Observing the information given shows 9, 69.1%, which it corresponds to 38 out of 55 teachers are familiar with the delivery of assignment and planning through their school institution, but the 30.0% corresponds to the 17 primary public-school teachers are not familiar with the delivery of assignment and planning through their school institution.

**Figure 10:**

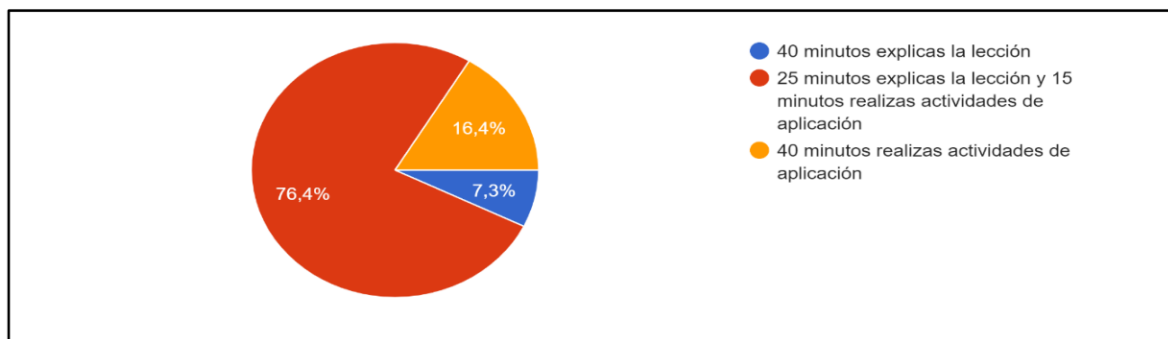*Do you use different tools when designing your lessons in your virtual classroom?*
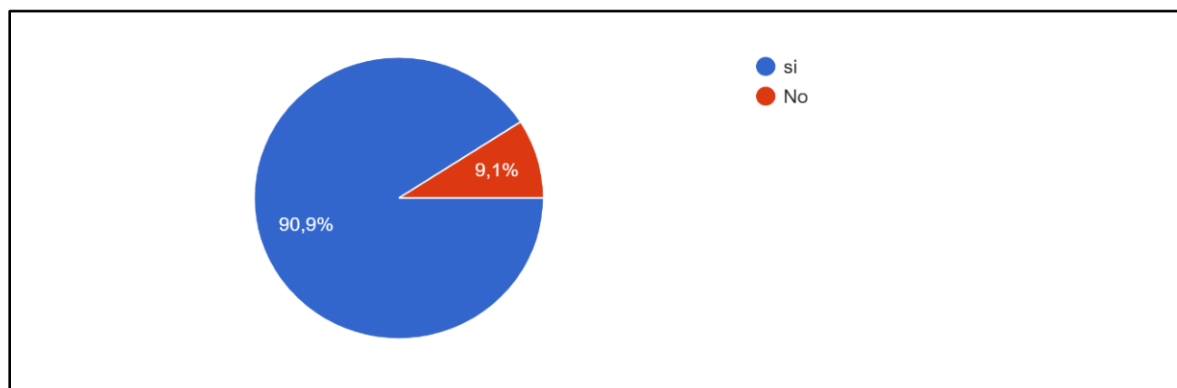


Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 10, 90.9% of primary teachers corresponds to 50 teachers that are using different tools to design their lessons in their virtual classes, and 9.1% represent 17 teachers that are not using different tools when they design their lessons on virtual classes.

**Figure 11:**

*Which factors do you consider, affect your good performance as a teacher?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* Observing the information given the figure 11 the 81.8% of primary teachers, which

corresponds to 45 teachers consider intermittent connectivity is a fact that affects the good teachers' performance. A 0.9%, which corresponds to 6 teachers who considered that lack of technological equipment is the reason that affects teachers' performance, and 7.3% corresponds to 4 teachers consider the lack of technological knowledge is the fact that affects the performance of teachers during the pandemic of COVID −19.

**Figure 12:**

*Do you know what content should be included in the planning of a virtual class?*
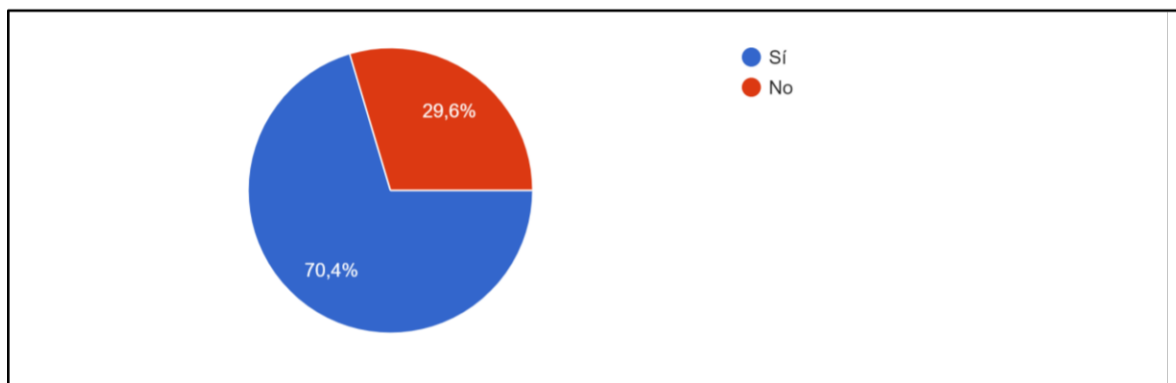


Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 12, 70.4% represents 38 teachers who confirm that they know the content that should be included in the planning of a virtual class, and the 29.6% of primary teachers correspond to 16 teachers, that do not know the content that should be included in the planning of a virtual class. Through this question of the survey, the study of the research has examined the performance of teachers in virtual planning in elementary public school.

**Figure 13:**

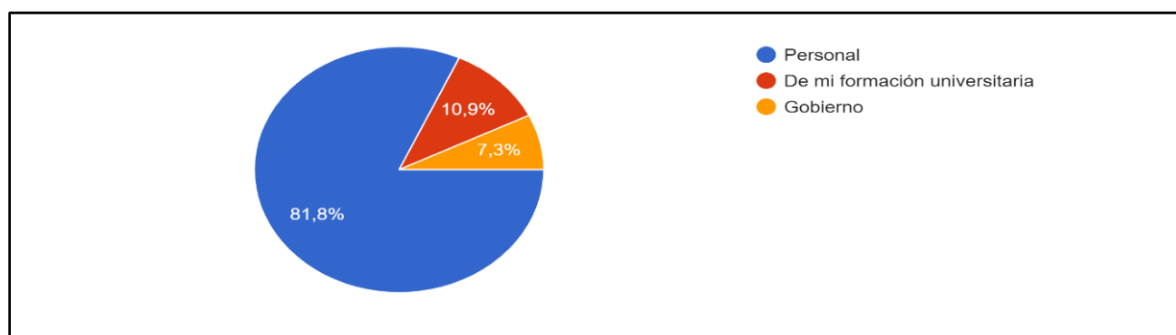*How do you distribute the class time?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 13 shown above that corresponds to 42 of the 55 teachers, interact with students versus 13 of the 55 teachers who do not interact with students.

**Figure 14:**

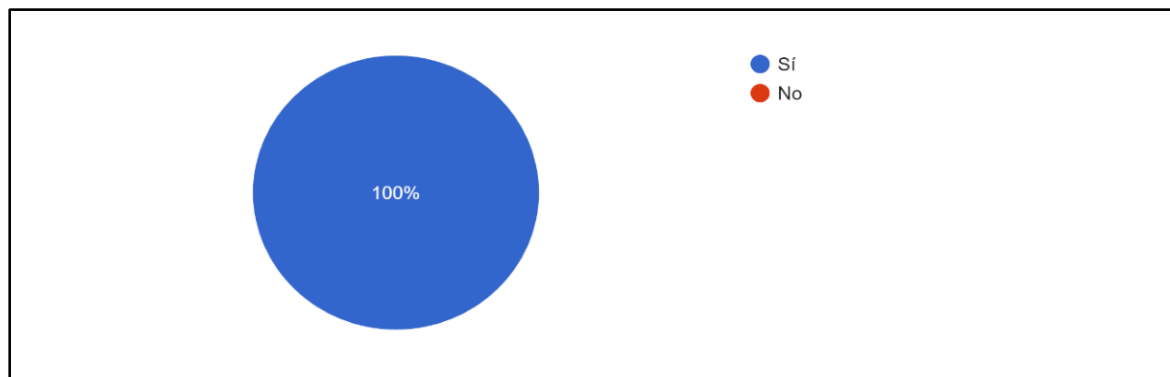Do you believe that your technological training is your responsibility of *.......*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 14 shown 45 of the 55 teachers states that training in virtual environments is their responsibility. And 6 of the 55 teachers states that universities should add to their academic subjects that help them perform better as teachers. It is important to remark that 4 of the 55 teachers believe that the government is responsible for its virtual education.

**Figure 15:**

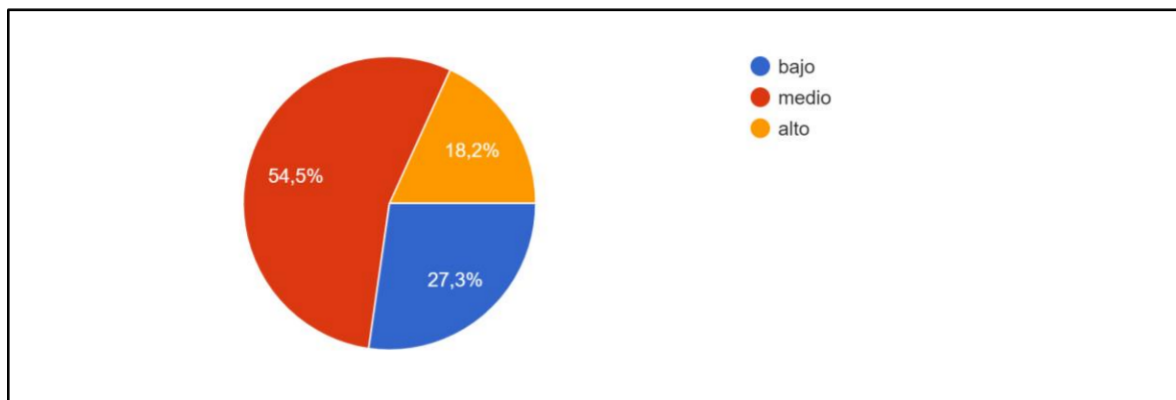*Do you consider learning new technological tools?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* The above figure shows that 100% of teachers agree on learning new technological tools.

It responds to what Educa Panama | Mi Portal (2020) has offered, through its educational page, are courses focused on three main characteristics: virtual classroom management, efficient school planning, and management of digital platforms.

**Figure 16:**

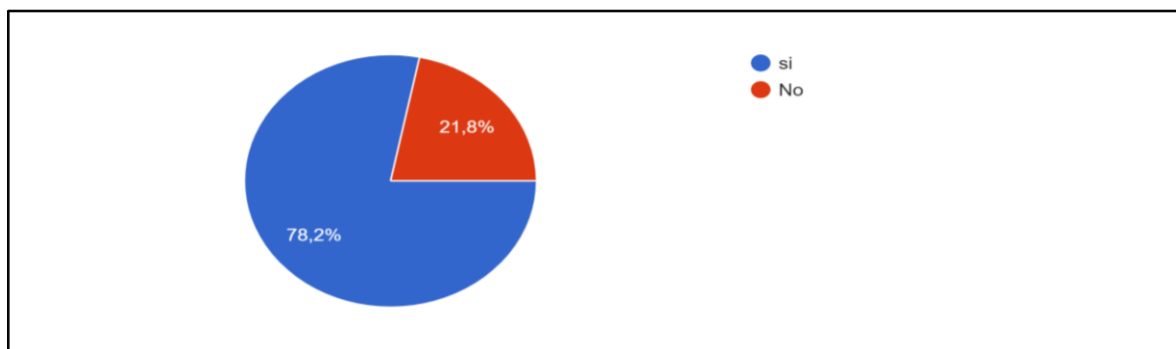*At what level do you consider your teaching performance has been affected during COVID-19?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* In figure 15, 30 of the 55 teachers considered that their performance was hit on medium level, 27% of teachers considered that their performance was not hit at a low level, as well as 10 of the 55 teachers considered that their performance was highly impacted by COVID-19.

**Figure 17:**

*Do you think that COVID-19 has been an opportunity to improve your performance as a teacher?*



Source:   Public elementary school respondents in Pedregal, District of Panama, March 2021.

*Note:* The above figure shows that 43 teachers state that COVID-19 has been an

opportunity to improve their performance as a teacher, meanwhile 12 teachers state that COVID-19 has not been an opportunity to improve their performance as a teacher.

## 4.2. Conclusions

These figures show that as time goes by, the elementary school teacher faces new challenges that allow him/her a continuous development in his/her performance as a teacher, which involves the acquisition of new virtual knowledge, especially in this new modality of distance learning due to COVID- 19.

In figure 8, this date indicates the general objective of this study of how virtual education affects teachers' performance at the elementary public school in Pedregal, District of Panama during COVID-19. The effectiveness and improvement of the primary, public-school teachers depend on what they expect of themselves.

Through the question given in figure 9, the study examines the performance of teachers in virtual planning at the elementary public- school. It indicated that teachers should change the ways of performing their professional competence.

In this sense, the relation between teachers with a lack of knowledge (figure 9) and the content included in the planning of a virtual class is proportional to teachers who declare that they are not familiar with submitting assignments and planning school platforms. These facts aimed to identify the percentage of the Panamanian population of elementary school teachers. The teachers express difficulty in using educational tools and platforms, which is one of the main objectives of this investigation.

The survey (figure 10) demonstrated the reason for the lack of teacher's performance. It is not because they cannot use technology, it is because of the lack of connectivity affecting good teachers' performance during COVID-19.

Through the question in figure 12 of the survey, the study of the research examines teachers' performance in virtual planning in elementary public schools. This research concludes that teachers are moving from the methodology of being a siege on the stage, and they are becoming more interactive, as seen in figure 12, about activities included in a virtual class. Meanwhile, it could be understood as teachers' aim to improve for students during COVID-19 (figure 14), taking the responsibility of learning how to teach in a virtual environment appropriately.

Figure 16 reinforces this investigation's hypothesis by showing that virtual education significantly impacts elementary public-school teachers' performance in Pedregal, District of Panama during COVID-19. Showing a 72.5% of teachers, 40 of 55 teachers were impacted by their performance from medium to high by COVID-19 situation even though more of them feel prepared in virtual environments.

**Recommendations**

The recommendations given through this study are the followings:

- Propose to MEDUCA a program that provides the necessary technological tools and internet access for teachers and students of those regions with no connectivity. This program will be not only for those teachers and students that live in regions with difficult access but for those that are in the metropolitan area having intermittent connectivity.

- Propose to elementary public schools to develop a training virtual educational plan to encourage teacher´s improvement every year before starting class.

- This research provides a handbook containing clear teaching weekly and daily planning templates, including time allocation for each activity's virtual lessons. This handbook will help the 30.9% of public elementary teachers that have shown in this study that have frequent problems during class development.

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**Annexes**

**Booklet contribution for elementary public teachers**

**Weekly Planning Template**

| WEEKLY PLAN | INSTRUCTOR: Maribel Ibáñez | SUBJECT | WEEK# |
| --- | --- | --- | --- |
| WEEKLY OBJECTIVES | | GRADE | DATE |

| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
| --- | --- | --- | --- | --- |
| OBJECTIVES & MATERIALS | | | | |
| | | | | |
| ASSESSMENTS | | | | |
| | | | | |
| WARM-UP AND CRITERIA DISCUSSION | | | | |
| | | | | |
| INSTRUCT AND MODEL | | | | |
| | | | | |
| GUIDED PRACTICE | | | | |
| | | | | |
| INDEPENDENT PRACTICE | | | | |
| | | | | |

Source: Panama Christian Academy, March 2021

**Daily Planning Template**



ESSENTIAL   EXTENDED   APPLICABLE

## VIRTUAL PLAN

TEACHER:          SUBJECT:          DATE:

| LESSON OBJECTIVES | MATERIALS/APPS |
|---|---|

ASSESSMENT ☐R ☐W ☐L ☐S ☐C ☐P

VIRTUAL WARM-UP

INSTRUCT AND MODEL ☐ R ☐ W ☐ L ☐ S ☐ C ☐ P

TYPE

DEDUCTIVE ☐
INQUIRY ☐
WORKED EXAMPLE ☐
CASE OF STUDY ☐

GUIDED PRACTICE ☐R ☐W ☐L ☐S ☐C ☐P

TYPE

PEER GUIDES ☐
TEACHER GUIDES ☐
VIDEO GUIDES ☐

INDEPENDENT PRACTICE ☐R ☐W ☐L ☐S ☐C ☑P

REVIEW GOALS

YES ☐
NO ☐

Source: Panama Christian Academy, March 2021

**Planning Example**



**ESSENTIAL** **EXTENDED** **APPLICABLE**

## VIRTUAL PLAN

**TEACHER:** Maribel Ibáñez      **SUBJECT:** Reading      **DATE:** 2002-03-2(

### LESSON OBJECTIVES

-Distinguish the short sound vowels in words.
-Distinguish the long sound vowels in words.
-Recognize the sounds of the consonants.
-Read short and long vowel words.      **Time: 1 min.**

### ASSESSMENT ✓R ☐W ☐L ☐S ☐C ☐P

DIAGNOSTIC:
- TIC-TAC-TOE game (read short and long sound words)

### MATERIALS/APPS

Video, powerpoint, paper, scissors, markers or black pencil, white board and their markers.

### VIRTUAL WARM-UP

-Review the syllabus
-Sing with a video the sound of letters.

**Time: 5 min.**

### INSTRUCT AND MODEL ☐R ☐W ✓L ✓S ☐C ☐P

-Listen and repeat sound of letters from a powerpoint presentation.

- Each student will say the letter the teacher is showing in a boys and girls contest.

**Time: 5 min.**

**TYPE**

DEDUCTIVE ✓

INQUIRY ☐

WORKED EXAMPLE ☐

CASE OF STUDY ☐

### GUIDED PRACTICE ☐R ✓W ✓L ☐S ☐C ☐P

-Write on their white boards the vowel the students listen to in 5 words the teacher says.

-Write on their white board the beginning sound of 10 words the teacher says.

**Time: 10 min.**

**TYPE**

PEER GUIDES ✓

TEACHER GUIDES ☐

VIDEO GUIDES ☐

### INDEPENDENT PRACTICE ✓R ☐W ☐L ☐S ☐C ☐P

-Each student will read a word playing TIC-TAC- TOE

**Time: 9 min.**

**REVIEW GOALS**

YES ☐
NO ☐

Source: Panama Christian Academy, March 2021

**The strategy used on daily planning: Rule 80/20**

**Purpose:**

- To determine the most important content of the general content (MEDUCA's Prioritized program)

- To use more activities to motivate children's learning.

- To ensure learning giving 20% of essential information by giving clear. instructions and modeling expectations onboard or any kind of virtual presentation.

- Students will be participating in an icebreaker, in guided practice, and finally independent practice.

- To have more interaction between classmates and teacher.

- To apply the lesson by practicing on their workbooks every day.

- To implement 20% talking only the teacher and 80% of students' participation.

**Time Lesson Distribution**: 6 minutes = 20% / 24 minutes = 80%

Communicate Objects:     1 min.

Instruct and Model:        5 min.

Virtual Warm up:           5 min.

Guided Practice            10 min.

Independent Practice        9 min.

 **Learning Skills**: R- reading, W-writing, L-listening, S- speaking, C-computing (math area), P- practical/projects.