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PERCEIVED STRESS LEVEL IN TEACHERS USING VIRTUAL EDUCATION IN THE PRIVATE EDUCATIONAL CENTER IN PANAMA EAST

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Dedication

To my mother, for being an important pillar; to my daughter Vanessa who is always with me in significant moments; to my son David and my dear husband Irene Sanchez. To my partners Tabita Rojas and Claire Drakes, we have made a good team to reach this goal.

Rosalma Pineda

To my husband Enry and my daughter Grace, who have always supported me and looked after my studies; to my parents, family, and close friends who have supported me and wished me success in my college education.

Claire Drakes

To my children Eliasib, Elideth and Elizabeth; to my husband Alberto; to my mother, family, and friends They have been a support, motivation, and inspiration in my personal and professional life.

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Abstract

The objective of the present study is to know the level of stress perceived during the last month by the teachers work and teach online classes in the private educational cemetery located in Panama East.

The sample is composed by the selection of the total amount of teachers or the private educational center having a final result of 29 teachers (20 women and 9 men). The Perceived Stress Scale (PSS) - full version 14 items, by Cohen, S., Kamarck, T., & Mermelstein, R. (1983), adapted by Dr. Eduardo Remor, was administered. The results reveal that eight (8) teachers corresponding to 28% present a low stress level, nine (9) teachers present a moderate stress and twelve (12) teachers maintain a high stress level, corresponding to 41%. In addition, the aspects that most frequently generate stress for teachers and those that do not represent a source of stress are described.

Key words: stress, education, teachers, virtual classes, burnout syndrome, information technology, and communication.

Resumen

Este estudio tiene como objetivo conocer el nivel de estrés percibido durante el último mes por los profesores que imparten clases bajo la modalidad de educación virtual en el centro educativo privado ubicado en Panamá Este. La muestra está compuesta por la selección de todos los profesores del centro privado, que en total son 29 profesores (20 mujeres y 9 hombres). Se administró la Escala de Estrés Percibido (PSS) - versión completa 14 ítems, de Cohen, S., Kamarck, T., & Mermelstein, R. (1983), adaptada por el Dr. Eduardo Remor. Los resultados revelan que ocho (8) profesores, correspondientes al 28%, tienen un nivel de estrés bajo, nueve (9) profesores tienen estrés moderado, y doce (12) profesores tienen un nivel de estrés alto, correspondiente al 41%. Además, con mayor frecuencia genera estrés para los maestros y los que no representan una fuente de estrés.

Palabras clave: Síndrome de agotamiento, educación, tecnología de la información y la comunicación, estrés, profesores, clases virtuales.

Table of Contents

Index of Tables and Graphs

Introduction

According to the World Health Organization (WHO), stress is the set of physiological reactions that prepare the body for action. Although it is certain, the individuals require of certain level of stress that motivates it to reach the wished objectives and that this as well generates satisfaction to him, the problematic one arises when the level of stress increases surpassing the capacities of confrontation, or by physical or psychic stressors (Orlandini, 2012).

The stress has become a very studied phenomenon very studied from an individual perspective that does not consider the factors and group components. Usually, the individual is considered responsible for his or her problems since he or she has factors that affect stress. Therefore, it is important to point out that studying stress from a collective perspective allows us to obtain better results and precisely this research work studies a collective that, due to the nature of their role, is exposed to diverse stressing factors, one of them being education under a virtual mode.

The education under virtual modality is nothing new in the country, in the particular school where the study is applied, it is a modality that in fact they were already using in a partial way, nevertheless, it took greater relevance after the closing of the schools product due to the COVID-19, decision of the competent authorities as measure of prevention of infections. This situation led the school to adopt the modality of virtual education to one hundred percent, representing a challenge for several stakeholders, one of them being the teachers who have had to adapt their academic plans and learn a new way of working.

For this reason, this work, whose line of research is virtual education, focuses on knowing the level of stress presented by teachers who teach under the virtual

education modality based on the use of technology. In addition, identify the main aspects of virtual education that generate stress in teachers.

Therefore, in chapter I of this work it presents the approach, situation and descriptionof the problem under study. It is highlighted the relevance of studying the stress phenomenon in teachers that nowadays exercise their role under the virtual mode to promote education in the country and to improve the learning interactions with students starting from a diagnostic base. Likewise, the general objective and the specific objectives of this research work are specified.

In chapter II, the concept of stress is extended, from its etymology, causes, symptoms, and theories that support this phenomenon. It is also deepened about virtual education, its foundation in the use of technology, and the main academic strategies.

In chapter III, the methodological framework is described, detailing the design and type of research, the universe, population, and sample that was considered to carry out the study. The instrument and data processing are also described.

Chapter IV, presents and analyzes the results of the research according to the data obtained from the survey to measure the level of stress in teachers who teach under virtual mode.

Finally, the discussion, the main conclusions of the study, and the recommendations are presented.

Chapter I

Chapter I. General Aspects of the Project

1.1. Background to the Problem

Education has been a process of learning and socializing that people carry out throughout their lives and that represents a mechanism through which knowledge and values are obtained, as well as the development of competencies, habits, skills, customs, beliefs, ways of acting and thinking, among other aspects necessary for society. Therefore, education plays a fundamental role both for individuals and for society in general, because it determines behavior and is part of cultural identity and the constant development of society and, therefore, of a country.

The teacher has a very important role in different aspects, besides parents, the teacher represents an authority figure in the education of children and young people, are able to inspire in the academic, professional, and personal training. This has posed a challenge for teachers in our country, making it increasingly necessary to have teachers trained in a comprehensive manner, not only in technological aspects but also in pedagogical, personal, and psychological aspects, so that they are able to design and apply teaching strategies according to each student population they serve, manage in stressful situations, overcome uncertainty and ensure the quality of education that the country needs, either in face-to-face or virtual environments.

In the general social environment, there is the premise that teaching corresponds to a vocational work, which has some factors that affect the good development of the profession and the person. In this way, relevant aspects such as low salaries, difficulties in the development of research, types of contracts, and work periods, among other aspects, have represented a decrease in the qualities of teachers´lives committed to this work and have generated a source of stress. In addition, education worldwide has been impacted by the COVID-19 pandemic, where schools have had

to move from face-to-face to virtual classes, which has represented an important stress for teachers due to the use of technology and other related factors.

1.2. Current Status of the Problem

Many people face daily work stress without noticing it, and teachers in educational institutions are no the exception. Teachers need to plan, organize and develop their dailyplanning to give their classes in the classroom. This action can take between two and three hours a day to achieve an adequate planning with the resources for the achievement of significant learning.

However, the continuous advance and increase of information and communication technologies and the demands of an increasingly globalized world, have caused the labor market, the economy and in particular education, to rethink their traditional methods to respond quickly to these changes. During the period of confinement due to the pandemic, the education sector adopted new strategies to fulfill the right of the child to receive education, implementing different modalities through the use of television, radio, and the use of platforms. This implies that teachers need to use technology for the development of their daily classes with students.

Taking into consideration the above, when the pandemic started schools went from face to face to online classes without a previous diagnostic to the students and teachers to detect the level of knowledge or domain of the virtual platforms.

Teachers with the interest of maintaining their source of economy accepted the challenge of teaching under the virtual modality with the technological platforms that some did not know. This situation affects their teaching strategies, additional academic hours to plan their lessons, hours as administrative support, interaction with parents and tutoring students knowing that these are not some of their responsibilities as teachers.

is required to perform this fundamental role in the process of teaching and learning, added to this the hours of training and preparation in technology platforms to carry out the process virtually.

These actions of overload in the daily work are linked to emotional exhaustion, symptoms associated with anxiety and depression, thus generating a level of stress in the teacher. The teacher's daily work is oriented to having to deal with an excessive number of students with different personalities and ways of learning, indiscipline, lack of interest in learning, little support and commitment from parents, abuse of power by their directors or supervisors, lack of tools and resources of the students, the presentation of reports and other types of documents associated with their function, which leads to generate stress, which can negatively affect their teaching performance and impact the students who attend.

It is important to point out that the stress that a teacher may present is also related to psychosocial factors, for example, infrastructure, tools and resources, physical spaces, and even technology impacting their emotional health, because these virtual environments are not adequately designed or teachers have not been trained to use these media (González, 2018).

1.2.1. Approach to the current problem

The stress generated by working in virtual environments is described as a feeling of inadequacy in the face of the difficulty of achieving a satisfactory degree of mastery of this technology. Before this sensation, the individual can experience irritability to receive instructions about the operation of any technological element, insomnia, depression, fatigue, headaches, muscle tension, among others (Sagrera, 2009).

The technology was designed as a resource to improve the quality of people´s lives,in most cases its use optimizes the time of completion of different activities and tasks,given its effectiveness, but for some it can increase the stress by the use of this resource. The main challenge for teachers is to provide a quality education that has a transforming power and human development, where teachers can create disruptive models of learning that develop soft skills through new ways of approaching knowledge, thus satisfying the requirements of the Ministry of Education, the directors of schools, parents, students and in general society that requires better education in the country.

The teachers are part of a group that has lived the health crisis's impact by the COVID-19 and reinvent their profession, which has led them to rethink the traditional way of teaching. They have had to adapt their planning and evaluations. Search for new didactic strategies to facilitate learning and respond to their supervisors' and parents' expectations and provide physical spaces in their homes to work and live the economic uncertainty.

What is the level of stress perceived by teachers who teach under the virtual education modality of a private educational center in Panama East?

1.3. General Assumptions

1.3.1. Research hypothesis

H0: The teachers who teach under the modality of virtual education in the private educational center, of the Corregimiento 24 de Diciembre, District of Panama present high levels of stress.

H1: The teachers who give classes under the modality of virtual education in the private educational center, of the Corregimiento 24 de Diciembre, District of Panama present low levels of stress.

1.4. General Objective

To know the level of stress perceived among teachers during the last month under the modality of virtual education in Panama East Private Educational Center.

1.5. Specific Objectives

1. To apply the Perceived Stress Scale to teachers who teach under the virtual mode for subsequent analysis.
2. To identify the main aspects that generate stress in teachers who teach under the virtual mode.
3. To analyze the aspects that are better evaluated by the teachers who give classes under the virtual mode.
4. To value the good practices for the management of stress in virtual education.
5. To provide recommendations and suggestions for the best stress management and best practices to make the most of virtual education.

1.6. Delimitations

The following are some of the limitations of this research work, described in temporal, spatial, circumstantial or population terms.

Temporal Delimitation: The time interval defined for the selection of information is estimated to be during the virtual education alternative by the COVID-19 contingency, which began in March of this year.

Spatial Delimitation: The Private Educational Center of East Panama

Circumstantial Delimitation: The main event is the contingency of the COVID-19 that led the teachers to conduct virtual classes.

Population demarcation: The study population's main characteristic is that they are teachers and are giving online classes.

1.7. Limitations

The main limitations for the realization of this research work are described below. The first one is based on the technological aspects, since the measurement instrument must be applied online, making it difficult for teachers to participate, and they must also have a good Internet connection to be able to complete the survey.

Because it is a sensitive and personal issue like stress, some teachers were reluctant to participate, attributing it to the confidentiality and use of the information obtained.

1.8. Justification

Currently, the study of stress in the educational sector is becoming more relevant since it allows the generation of criteria for attention, prevention, and integral health care of teachers. It has also been shown the scientific interest shown by several disciplines such as medicine, psychology, neurology, biology, neurosciences, and education. Studying the phenomenon of stress is relevant because the environmental conditions where the human being developed have changed, circumstances in which the teacher is exposed and must deal with.

Education plays a fundamental role both for individuals and for society in general, on the one hand, because it determines behavior and, on the other hand, because it is part of cultural identity and the constant development of society and, therefore, of a country.

Therefore, the role of the teacher plays a very important role in different aspects, one of them is that besides parents, the teacher represents an authority figure in the education of children and young people, they are able to inspire in the academic, professional, and personal formation. This poses a challenge for the country's teachers, making it increasingly necessary to have teachers who are integrally

prepared, not only in technological aspects but also in pedagogical and personal aspects, so that they are capable of designing and applying didactic strategies according to each student population they serve, managing in stressful situations, overcoming uncertainty and guaranteeing the quality of education that the country needs, whether in face-to-face or virtual environments.

An important aspect in education is the development of information and communication technologies (ICT), which has opened up countless possibilities for educational projects and interventions in which all students have the opportunity to access a quality education regardless of time or place, thus eliminating time and distance as an obstacle to teaching and learning.

Despite the fact that there are probably technological platforms for virtual education, it is important to clarify that a quality education can succeed with inadequate technology; but having an excellent technology does not determine the success of a class without having a qualified teacher.

Knowing that teachers are key actors in the process of virtual education, it becomes essential to accompany them in this transition to a new educational reality and contribute to their welfare in aspects of their work and personal lives. For this reason, knowing which factors in the particular educational environment generate the greatest stress during this contingency becomes important to identify them becausethey will allow us to generate actions that mitigate this impact and we can count on trained and healthy teachers, who will provide a quality education to the country's students.

Additionally, this study provides information that will serve as a basis for future research and not only for development in the faculty but also in the entire university.

1.9. Purpose of the Research

Through this research, we seek to know the perceived level of stress in teachers who teach under the modality of virtual education during the last month. This data allows us to have a diagnostic impression of how the teachers of the educational center in Panama East are dealing with their day-to-day life, both on a personal and professional level. Considering that the teachers are currently 100% giving classes in a virtual way as a result of the contingency by COVID-19.

This information is the basis for undertaking actions that contribute to the management, reduction, and prevention of stress in teachers, which in turn translates into improvements for the country's education since it will have professionals with adequate mental health.

Chapter II

Chapter II. Theoretical Framework

2.1. Research Framework

This research intends to find the levels of stress that teachers experienced during the sudden change from classroom teaching to distance teaching due to the COVID-19 lockdown, and their role/responsibility how this process can be improved in the future. In order to continue the education process in Panama during the COVID-19 pandemic. Lasts, the Panamanian government through the Ministry of Education reestablishedthe 2020 school period from July 20th to December 30th at a distance under the virtualeducation modality.

The change from face-to-face to distance interaction between teachers and students was sudden, unexpected and with many limitations such as, lack of proper organization, teacher and student training, poor or access to internet and appropriate technology, and the absence of a national teaching-learning platform. These limitations affected the educative community in general, thus the education process. The main purpose of this research is to know how the stress factor on teachers changed during the virtual education modality in relation to the face-to-face education, as well as their opinions on how the virtual education process can be improved.

2.2. Theoretical Foundations

Research Type

This is an applied research, for it seeks to obtain practical answers to specific problems. As defined by the Form Plus scientific blog,

> Applied research is a type of research design that seeks to solve a specific problem or provide innovative solutions to issues affecting an individual, group

> or society. It is often referred to as a scientific method of inquiry or contractual research because it involves the practical application of scientific methods to everyday problems. Form Plus Blog (2020,n.p.)

In this case, it is about how the distance education during the 2020 pandemic state, affected the teachers at a particular private school and thus its overall education process. The stress levels in teachers and how they feel regarding to any teaching modality, directly affects the education process, and this is why it is important to know how teachers experience new learning-teaching modalities, in order to make them more effective. The type of this research goes accordingly to the nature of this investigation. It will provide an excellent insight on the education process in this particular school, to have a better understanding of how it can be improved in the future.

This research used a multiple-choice survey to know how teachers experienced the 2020 virtual education modality and what they think must be improved in the future regarding the distance teacher-student interaction.

> Researchers can use both closed-ended and open-ended questions on a survey. For closed-ended questions, one of the most common types is multiple-choice questions, which provide respondents with a certain number of specific response options as possible answers. Researchers use multiple-choice questions on surveys to gather information about behaviors, attitudes, and demographic characteristics of the respondents. Response options can be ordered or non-ordered when using multiple-choice questions, and researchers can give respondents the option of choosing only one answer or multiple answers. This entry reviews three basic types of multiple-choice questions used in surveys: demographic questions, behavioral questions, and questions about attitudes and beliefs (Allen, 2017).

Mike Allen (2017) due to the nature of this research, the survey is an excellent tool for gathering demographic and personal perception type of data.

2.3. Conceptual Framework

2.3.1. Conceptualization of Stress

The United States National Institute of Health, defines stress as the following, *"*Stress is a physical and emotional reaction that people experience as they encounter changes in life*."* NIH (2020). Although stress is natural, too much stress can negatively affect the general health of an individual.

> Stress can cause physical, emotional, and behavioral problems which can affect your health, energy, well-being, mental alertness, and personal and professional relationships. It can also cause defensiveness, lack of motivation, difficulty concentrating, accidents, reduced productivity, and interpersonal conflict between normally harmonious colleagues. (Heathfield, 2020).

This is why it is important to identify the causes of stress or stressors, especially when they are affecting an important part of a particular demographic, in order to make the necessary corrections to reduce it.

2.3.2. Distress and Eustress

Stress is natural and necessary, for it is a physiological mechanism that triggers our body's response to solve problems.

> When we encounter stress, our body is stimulated to produce stress hormones that trigger a 'flight or fight' response and activate our immune system. This response helps us to respond quickly to dangerous situations. Sometimes, this stress response can be an appropriate, or even beneficial reaction. (United Kingdom's Mental Health Foundation, 2021).

The words distress and eustress are used to refer to the negatives and positive effects of stress respectively. According to the Merriam-Western Dictionary, eustress

is “a positive form of stress having a beneficial effect on health, motivation, performance, and emotional well-being”, Merriam-Webster Dictionary (2021). *In contrast, distress* corresponds to the negative effects of stress.

The American Addiction Centers through their Mental Help subsidiary, lists the positives and negative effects of eustress and distress respectively as follows:

Eustress, or positive stress, has the following characteristics:

- Motivates, focuses energy.
- Is short-term.
- Is perceived as within our coping abilities.
- Feels exciting.
- Improves performance.

In contrast, Distress, or negative stress, has the following characteristics:

- Causes anxiety or concern.
- Can be short- or long-term.
- Is perceived as outside of our coping abilities.
- Feels unpleasant.
- Decreases performance.
- Can lead to mental and physical problems. (AAC Mental Help, 2021)

It is important to know that stress is natural and not necessarily bad, however, in great quantities, can harmful people that experience it.

2.3.3. Occupational Stress

Concept

It is important to identify the type of stress related to the context of this research, which is occupational stress, and to understand its causes and consequences. The Communications Workers of America Labor Union, stated the following:

“Occupational stress is one of the major health hazards of the modern workplace” CWA Labor Union (2017).

> Workplace stress, formally known as occupational stress, is defined by the Canadian Centre for Occupational Health and Safety as (…) the harmful physical and emotional responses that can happen when there is a conflict between job demands on the employee and the amount of control an employee has over meeting these demands. CCOHS (2018)

2.3.4. General Health Consequences

Occupational stress can have serious consequences in the employees, as stated by in the publication,

> Occupational stress and its consequences: Implications for health policy and management, which reads (…) occupational stressors generate adverse health with severe behavioral consequences, occupational stress results from a “toxic” work environment such as poor control, high work demands, lack of information, extreme pressure and low decision-making latitude (Moreno Fortes, Scott Huebner,2020).

According to doctor Ali Mohammad investigations on the subject, the following conditions can trigger occupational stress on workers,

> Job-related, working environment, interpersonal and organizational factors were related to occupational stress. One-fourth of employees rated their occupational stress high. The major sources of occupational stress were inadequate pay, inequality at work, too much work, staff shortage, poor recognition and promotion, time pressure, job insecurity and lack of management support. Ali Mohammad 2014).

Among the general health consequences of workplace related stress, doctor Mohammed expressed the following, “High levels of occupational stress have been

linked to an increased risk of physical injuries, cardiovascular disease, high blood pressure, depression and increases in negative personal behaviors such as anger, anxiety and irritability.” Ali Mohammad (2014).

2.3.5. Workplace Health Consequences

As for work performance, occupational stress can affect the employees in the following professional aspects, “Occupational stressors contribute to organizational inefficiency, high staff turnover, absenteeism due to sickness, decreased quality, and quantity of practice, increased costs of health care, and decreased job satisfaction*.” Rubina Kazmi, Shehla Amjad, Delawar Khan (2008).* Occupational stress can seriously impact the general health and professional development of people, thus affecting both their personal life and job performance. This is why it is crucial that workplace stressors are identified and addressed, in order to make the necessary changes to reduce occupational stress and its consequences.

2.3.6. Burnout Syndrome

Burnout syndrome is another consequence of workplace related stress that can affect the overall performance of the employees. The World Health Organization defines it in its eleventh revision of the International Classification of Diseases as the following: “Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. Untreated occupational stress can result in burnout syndrome.

2.3.7. Burnout Syndrome in Teachers

The teacher population in a school can be collectively affected by this syndrome. When this phenomenon occurs, it is called teacher burnout, as explained by the education management platform, The Graide Network,

> The collective symptoms of fatigue, overwhelm, boredom, depression, anxiety, stress, apathy and frustration (among other negative emotions) are referred to as “teacher burnout.” While these may characterize any educator, who has hit their limit, the condition most commonly affects classroom teachers, who deal with day-to-day student interaction. (The Graide Network, 2019).

Consequences

Among the burnout syndrome health consequence, we can observe the following:

“It is characterized by three dimensions:

- feelings of energy depletion or exhaustion;
- increased mental distance from one’s job, or feelings of negativism or cynicism related to one's job; and
- reduced professional efficacy.” WHO, ICD-11, (2018).

These consequences directly affect the job performance of the employees, consequently, reducing the productivity of the company or institution. Teacher burnout can dramatically affect the education process, as it impacts the overall psychological and physical health of the educators collectively.

2.3.8. Occupational Stress Factors in Teachers

Teaching is worldly considered as a high stress job, as professor McCarthy stated, “Teaching is widely recognized to be a stressful occupation, characterized by numerous and varied challenges: administrative burdens, long hours, classroom management difficulties, and lack of autonomy, to name but a few.” Christopher Jay McCarthy (2009). These are only a few examples of stressors that teachers may face in their workplace. This profession is among the ones that experience the must stress, similar to that of the medical workers and law enforcement agents. Irish

clinical psychologist, Dr Tony Humphreys expressed, "Teachers have gone up the scale and are now ahead of nurses, doctors and policemen in terms of stress.", Dr. Humphreys (2019). According to the United Kingdom National Foundation for Educational Research,

> Teachers are more likely to suffer job-related stress than other professionals, a study has found. One in five teachers feels tense about their job all or most of the time, compared with one in eight workers in similar professions, analysis by the National Foundation for Educational Research revealed. Eleanor Busby Education Correspondent (2019).

2.3.9. Main Causes

Although occupational stress in teachers varies according to the specific demographic, cultural and social conditions of every country or region, some general causes are student misbehavior, poor working conditions, lack of proper training and high work demand. This common causes have been scientifically proven by many studies, as mentioned by professors Harmsen, Helms-Lorenz and Maulana of the University of Groningen, “A number of stress causes for teachers, including high job demands, pupil misbehavior, poor working conditions, poor relationships at work, role conflict, role ambiguity, lack of autonomy, poor school ethos and lack of developmental opportunities, were revealed in many studies” (Hanif, 2004. (2004). Ruth Harmsen, Michelle Helms-Lorenz, Ridwan Maulana (2018), University of Groningen, Groningen, the Netherlands. These stress factors of stressors are also common in the panama education system.

2.3.10. Information and Communication Technologies

The Information and Communication Technologies (ICT) are the technological tools that allow distance interaction through electronic devices such as computers, and radio. According to The United Nations Educational, Scientific and Cultural Organization (UNESCO), ICT´s are defined *as*

"Diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet (websites, blogs and emails), live broadcasting technologies (radio, television and webcasting), recorded broadcasting technologies (podcasting, audio and video players and storage devices) and telephony (fixed or mobile, satellite, video-conferencing, etc.)". UNESCO, (2021).

2.3.11. Advantages of the ICT in Education

The United Nations Educational, Scientific and Cultural Organization consider the ICTs a complement that can help improve education, "Information and communication technology (ICT) can complement, enrich and transform education for the better." UNESCO (2021). Technology has become part of the global social development and interaction, as expressed by Professor Allen. *"*Technology affects the way individuals communicate, learn, and think. It helps society and determines how people interact with each other on a daily basis. Technology plays an important role in society today.*"* Mickeel Allen (2019). Alvernia University. CT has the potential to make the educational process more attractive, dynamic, interactive, therefore more efficient.

> ICT in education improves engagement and knowledge retention: When ICT is integrated into lessons, students become more engaged in their work. This is because technology provides different opportunities to make it more fun and enjoyable in terms of teaching the same things in different ways. As a consequence of this increased engagement, it is said that they will be able to retain knowledge more effectively and efficiently (ICTE Solutions Australia, 2020).

The ITCs make distance communication possible, and this is why is a great tool to keep the education process going on even at a distance.

2.3.12. Distance Learning

Distance education, most commonly known as distance learning, it includes but not limited to e-learning. It comprehends any form of non-physical or classroom education modality. The teacher-student interaction is conducted through analogical or technological means, such as letters, newspaper or magazine, e-mail, telephone, radio and computer and many others. “Distance learning, also called distance education, e-learning, and online learning, 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” (Michael Simonson, 2020).

2.3.13. The e-Learning process

The e-learning or electronic learning, can be defined as the following, “…the acquisition of knowledge which takes place through electronic technologies and media. In simple language, e-learning is defined as learning that is enabled electronically”. Donna J. Abernathy (2019).

Due to the 2020 pandemic state lockdown, the classroom or face-to-face learning was cancelled, not only in Panama but in many countries around the world, and instead distance learning was implemented. “The COVID-19 pandemic has become a global health issue and has had a major impact on education. Consequently, half way through the second semester of the academic year 2019/2020, learning methods were delivered through distance learning (DL).” Lisa R. Amir, Ira Tanti, Diah Ayu Maharani, Yuniardini Septorini Wimardhani, Vera Julia, Benso Sulijaya, Ria Puspitawati (2020), *BMC Medical Education.* The World Economic Forum estimated that over 1 billion students around the world stopped receiving classroom education, and this satiation generated an important implementation of e-learning distance education format.

"The COVID-19 has resulted in schools shut all across the world. Globally, over 1.2 billion children are out of the classroom. As a result, education has changed dramatically, with the distinctive rise of e-learning, whereby teaching is undertaken remotely and on digital platforms." Cathy Li (2020), World Economic Forum. This was made possible thanks to the scientific advances in the information and communication technologies.

In Panama, education was delivered through radio and TV through the national education program "Conectate con La Estrella", and teachers used apps like WhatsApp, Zoom, Microsoft Teams and others through technological devices such as computers and smartphones, to interact with their students. The ICT helped the education process continue at a distance. Furthermore, scientific studies have been suggesting that the ICTs is going to remain as an important part of today's globalized education process. "Research suggests that online learning has been shown to increase retention of information, and take less time, meaning the changes coronavirus have caused might be here to stay." World Economic Forum (2020*).* This is why it is important that the whole 'educative community' (students, parents, teacher and administrative staff), learn to use and take advantage of the benefits that the information and communication technologies can offer to the teaching-learning process of our pupils. The use of ITC in education is a great tool to improve the education process, and continue even at a distance.

2.3.14. Synchronous and Asynchronous Teacher-Student Interaction

The teacher-student interaction may occur both synchronously and asynchronously. Synchronous communication refers to the real-time exchange of information, while asynchronous communication comprehends an exchange of information that does not occur at the same time.

> Synchronous learning is online or distance education that happens in real time, often with a set class schedule and required login times. Asynchronous

> learning does not require real-time interaction; instead, content is available online for students to access when it best suits their schedules, and assignments are completed to deadlines. Programs can also use a hybrid learning model, which includes a blend of both formats. (TBS Staff, 2021)

Common examples of synchronous learning tools include, video conference, chat, instant messaging (IM), phone calls, video phone calls, and voice notes. Some examples of asynchronous learning tools are, recorded video lesion or tutorials, virtual forum, mail and email, blogs, wikis and others. Both synchronous and asynchronous teacher-student interaction have their benefits, as well as their disadvantages.

Some advantages of synchronous learning activities include:

- creates a space for social support among peers and the instructor;
- allows students to provide context to their responses and to receive immediate responses from their peers and instructor; and
- offers the instructor a chance to clarify misconceptions on material in real-time (Giesbers et al., 2013).

Some advantages of asynchronous learning activities include:

- benefits temporally-diverse students by accommodating when they can access the course;
- offers more time and space for students to reflect on their learning, practice, and refine their contributions to class activities; and
- Generates an archive of information (e.g., discussion posts, instructor recaps, recorded videos) that students can return to throughout the semester (Johnson, 2006, cited University of Massachusetts Amherst, 2020).

2.3.15. Role of the Teacher in the e-learning process

In today's education process, the role of the teacher has changed in relation to traditional school from being the center of knowledge of the students, to play the role of mediator. The teacher provides the students with information, but the students develop their own learning. This means, the students no longer depend on the teacher to learn everything, for they have become more independent and are able to produce knowledge by on their own. Students can solve problems and create products of knowledge through the interaction with their peers, without little intervention from the teachers. This approach is called "Student-centered learning", and it changes the role of the students from passive receivers of information to active learners.

Student-centered learning is personalized, engaging, competency-based and not restricted to the classroom. Students take greater responsibility for their learning and support each other's progress, so every student gets the skills he or she needs to succeed and contribute to society. Student-centered learning engages students in their own success - and incorporates their interests and skills into the learning process. (Nellie Mae Education Foundation Message Manual, 2014).

This learning approach, is also very effective in the e-learning education. The followings are common examples of areas that benefit from the student-centered learning approach.

7 Advantages of A Learner Centered Approach In e-Learning

- Improves participation.
- Improves retention of knowledge.
- Boosts performance at work.
- Develops problem-solving skills.

- Fosters collaborative learning.
- Makes learning more fun.
- Facilitates personalized learning", Anand Timothy (2014)

Teachers most guide the student, and adapt the learning process to their need and learning styles, as stated by James, *"An online teacher needs to play the role of guiding students through one or more online learning experiences. After all, different online learners prefer different learning styles and modes. So, online teachers need to change their mode of teaching accordingly to provide personalized education."* Chris James (2019).

The following are some of the most important technical skills and knowledge that teachers must have and apply in order to provide the students with an effective teaching-learning process.

8 Skills and Knowledge in the e-Learning Process

1. **Subject expert.**

Teachers must update their knowledge constantly, to provide students with the most up-to-date methodologies, approaches, techniques and teaching tools.

2. **Communication skills.**

Teachers must use an effective and comprehensive language that is appropriate for the skills and the level of the students.

3. **Technological literacy.**

Teachers must know how to properly implement the ICT in the education process.

4. **Student-centered.**

Teachers must focus the learning process on the students, in order for them to develop more learning independence, and active participation.

5. **Time management.**

Teachers must learn how to distribute the teaching process time properly. The introduction of the concept should be brief, and student assignments should have a proper deadline.

6. **Innovative and creative**

Teachers must know how develop and apply new, attractive, and interactive teaching activities for their students.

7. **Engaging.**

Teachers teaching style must be active and engaging for the students.

8. **Address All learning styles.**

Teachers must respect and respond to all learning styles. The learning process must include visual, auditory and kinesthetic learning activities.

These 8 skills are required in today's education process, for they make the professional role and profile of the teachers more complete, efficient and effective in the distance learning environments, including the e-learning interaction.

Chapter III

Chapter III. Methodological Framework

2.1. Type of reference

This is a quantitative, non-experimental, cross-sectional, descriptive study.

2.1.1. Definition

This work has a quantitative approach that uses the collection of information or data to test its hypothesis and uses a numerical measurement to present the results in the form of statistical analysis. This facilitates the establishment of behavioral patterns by the researchers and the verification of the theories proposed in this document. Cross-sectional designs allow the study of a phenomenon to be carried out at a specific moment in time (Cook and Reichard, 2000).

According to Hernández et al. (2010) "descriptive studies seek to specify the properties, characteristics and profiles of people, groups, communities, processes, object or any other phenomenon that is subjected to analysis" (p.80).

The type of applied research is known as "basic" or "pure", which is oriented to the production of knowledge and theories, where the purpose of the researcher is to detail situations, calculating and evaluating various aspects, dimensions or components of the phenomenon or phenomena under investigation. (Hernández et al., 2003).

2.1.2. Justification

In the context of education, the teacher's experience and perception are very important when it comes to identifying the areas that need improvement, especially in a new teaching approach such as the virtual modality. This is why this research

focuses on knowing the overall teacher experience, how they feel and what think about this modality, in order to determine the aspects that may require improvement. This data will allow the development of better strategies for a proper administration and management of the virtual teaching process. The teachers' feedback is very crucial to establish an adequate and continuous improvement plan.

This research is descriptive, as it identifies a problem, which is the level of stress faced by teachers in virtual education, classifies it and shows the perception of the teachers who experience it.

The type of research is non-experimental, since it analyzes an existing situation, without manipulating its variables and is based on the observation of a situation as it occurs in its natural context with its due analysis.

In relation to the period of time of the application of the instrument and its respective follow-up, it is a cross-sectional study, since the instrument of measurement was applied only once, in order to minimize the time of this research.

2.2. Conceptual and Operational Definition of the Variables

2.2.1. Conceptual definition

Perceived stress: is an outcome variable, where the individual measures his/her own stress level in relation to the environmental conditions that surround him/her, these includes his/her culture, personality, as well as his/her physical and psychological health. (Cohen et al., 1983; García-Guerrero, 2011).

Virtual education modality: It is the learning process that takes place through digital communication technologies. This teacher-student interaction can take place synchronously, through calls, video conferences, text messages and instant

messaging, or asynchronously, using e-mail, virtual forums, video lessons, among others. This modality can also include some face-to-face classes for follow-up, reinforcement or for the completion of a final test. (Pérez, Sáiz and i Miravelles, 2006).

2.2.2. Operational definition

Perceived stress: The Perceived Stress Scale (EEP PSS-14) was used to prepare a multiple-choice test with 14 questions, each with 5 options to choose from numbers 0 to 4, in which teachers expressed the level of stress experienced under certain conditions and in specific situations.

Virtual education modality: A survey was applied with demographic data on the virtual education modality. The mediation was conducted through the last three multiple choice and frequency options of the survey, with the purpose of knowing the teachers' perception and valuation of the technological tools available to them, as well as the balance between their work and personal life.

Variable	Dimensions	Indicators	Operational Procedure	Type of Variable
Perceived stress	Low stress Moderate stress High stress	<13 points Between 14 and 20 >21 points	Perceived stress was measured by the described score of the assessment, and this score was obtained	Quantitative

			by inverting the scores of items 4, 5, 6, 7, 9, 10 and 13 (in the following sense: 1=5, 2=4, 3=3, 4=2, 5=1), obtaining the average of the 14 items (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14).	
Virtual education modality	Perception of performance. Assessment of technological tools. Quality of life.	Frequency scale and multiple-choice	Question 5 Question 6 Question 7	Quantitative

3.3. Population

3.3.1. Population

29 teachers that work through virtual education in a private school located in the Corregimiento 24 de Diciembre, District of Panama.

3.3.2. Sample

The sample is composed of the answers provided by the 29 teachers who work in the private school where this research was conducted.

3.4. Instrumentation

The instruments used for this study are described below.

3.4.1. Survey on demographic data and virtual education

This survey seeks to find out demographic data about the teachers who are part of this study. It consists of seven multiple-choice questions that includes the following items: gender, age range, academic level, seniority in the job. In addition, it presents questions on the perception of teaching performance under the virtual education modality, the technological tools available and the balance that teachers are able to make between their personal life and their teaching work within this modality.

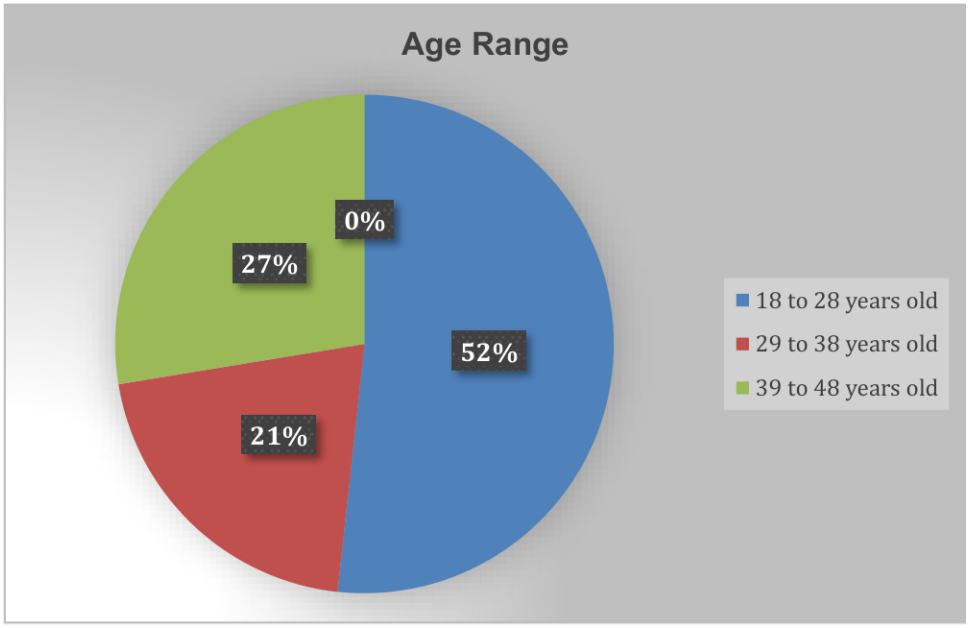
3.4.2. Perceived Stress Scale

Perceived Stress Scale (PSS) full version 14 items, spanish version (2.0) of the Perceived Stress Scale (PSS) by Cohen, S., Kamarck, T., & Mermelstein, R. (1983), adapted by Dr. Eduardo Remor. The PSS is made up of 14 items that measure the degree to which, during the last month, people have felt upset or worried or, on the contrary, have felt confident in their ability to control their personal problems. The scale scores between 0-56, with higher scores indicating greater perceived stress. It uses a five-alternative Likert-type response format with a range of (0 = never, 1 = almost never, 2 = occasionally, 3 = often, 4 = very often). The total PSS score is obtained by inverting the scores of items 4, 5, 6, 7, 9, 10 and 13 (in the following sense: 0=4, 1=3, 2=2, 3=1 and 4=0) and then adding the 14 items. The direct score obtained indicates that a higher score corresponds to a higher level of perceived stress.

Chapter IV

Chapter IV. Presentation and Analysis of Results

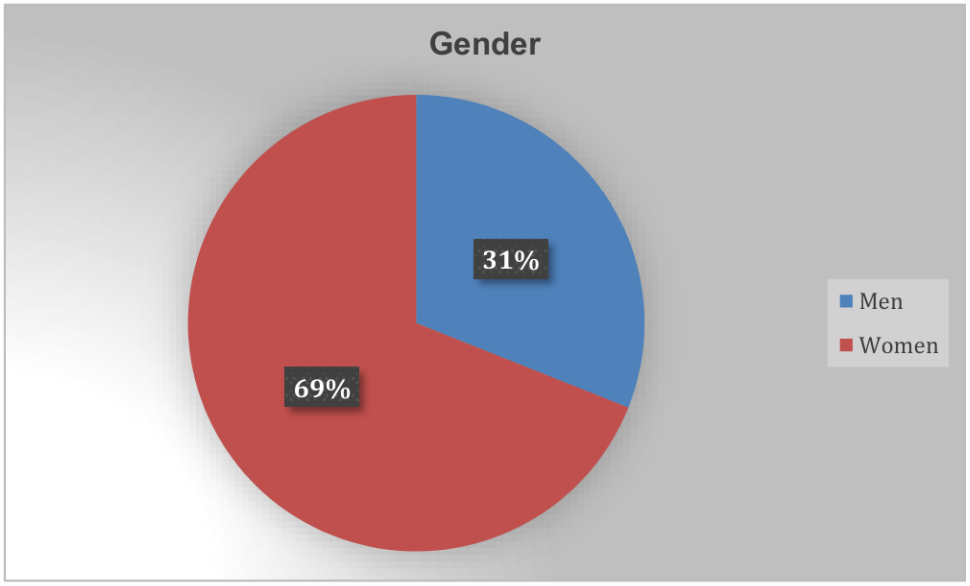
Graph 1: Age Range



Source: Rojas, Drakes, Pineda, (2020), survey of demographic data and on virtual education modality.

Analysis and interpretation of the results: 52% are in the age range of 18 to 28 years old, while 21% are between 29 to 38 years old, the remaining group of teachers, 27% are between 39 to 48 years old.

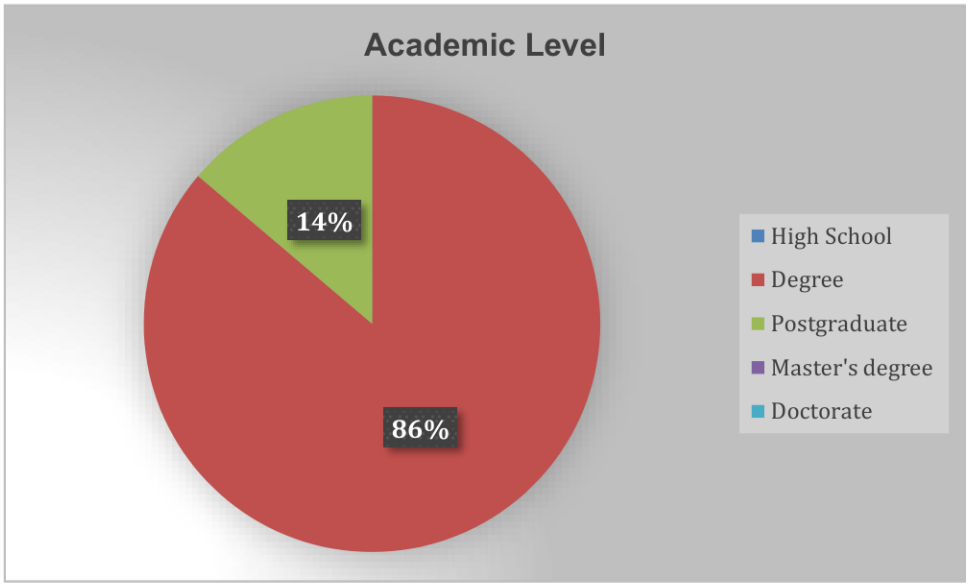
Graph 2: *Gender*



Source: Rojas, Drakes, Pineda, (2020), survey of demographic data and on the virtual education modality.

Analysis and interpretation of the results: the graph shows that twenty (20) women participated in the study, representing 69% of the total number of respondents, and nine (9) men, representing the remaining 31%.

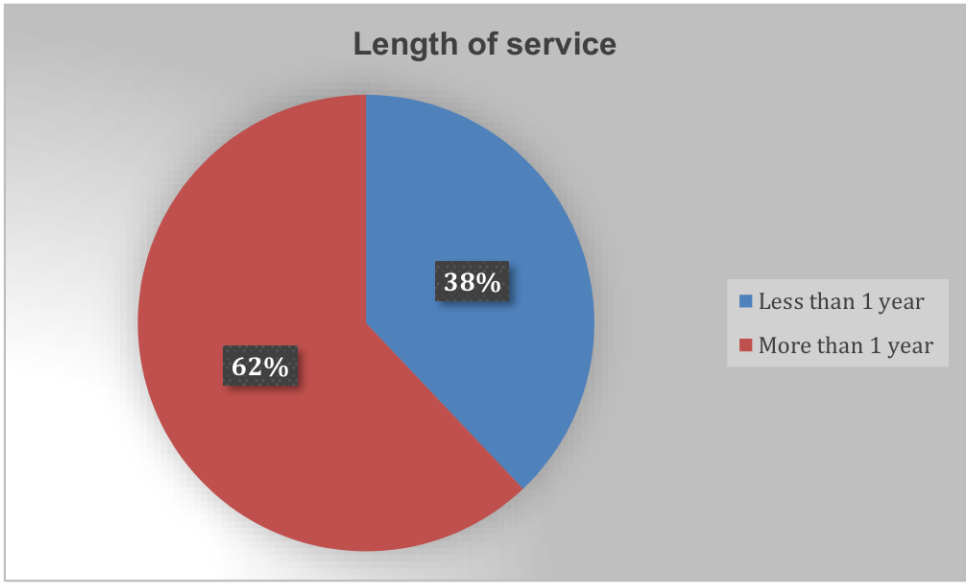
Graph 3: Academic Level



Source: Rojas, Drakes, Pineda, (2020), survey of demographic data and on the virtual education modality.

Analysis and interpretation of the results: twenty-five (25) teachers, corresponding to 86% have a bachelor's degree, while the remaining 14%, composed by four (4) teachers, have a degree.

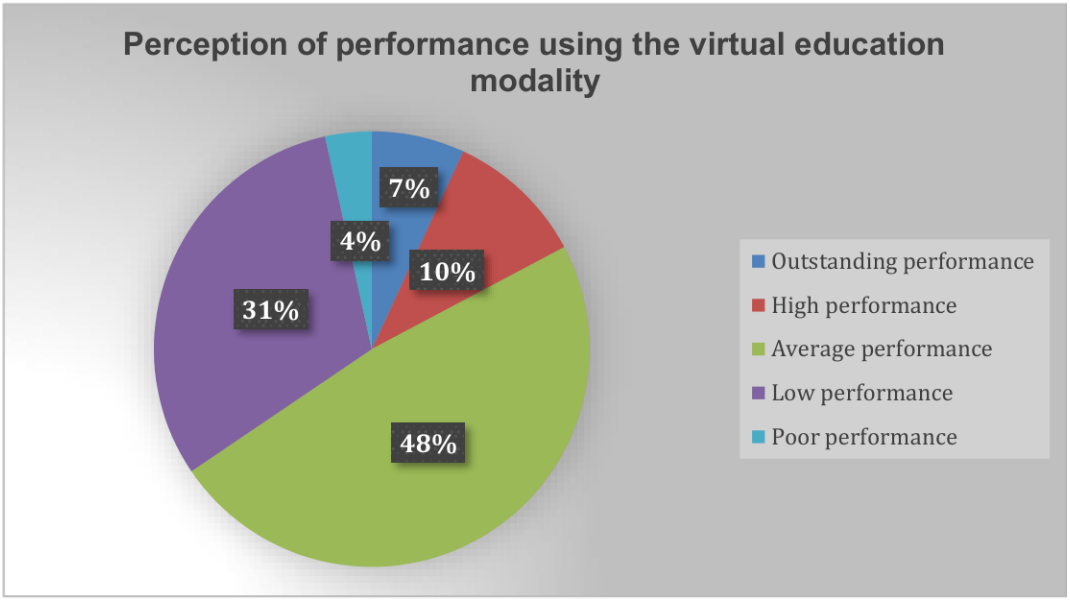
Graph 4: Length of Service



Source: Rojas, Drakes, Pineda, (2020), survey of demographic data and virtual education modality.

Analysis and interpretation of the results: eleven (11) teachers, corresponding to 38%, have less than one year of seniority and eighteen (18) teachers have more than one year of seniority, corresponding to 62%.

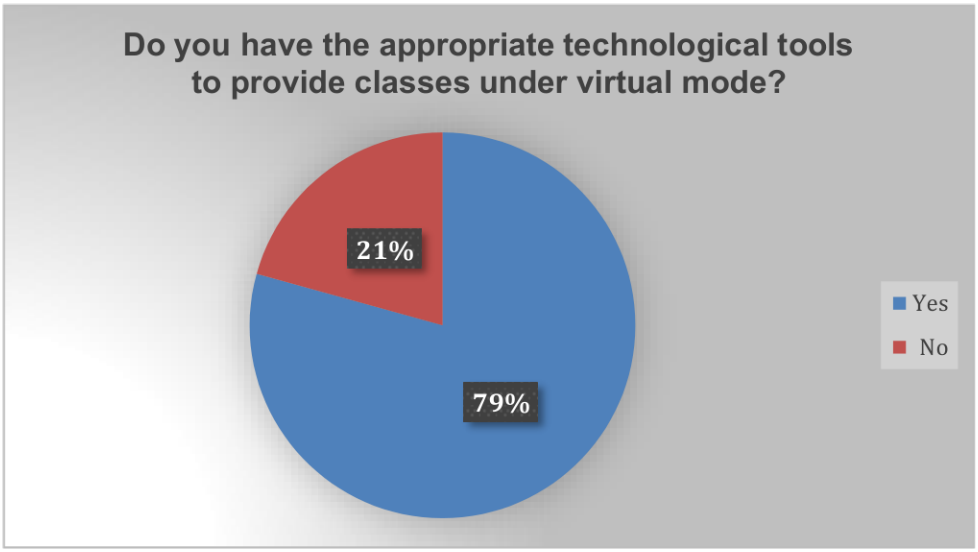
Graph 5: Perception of performance using the virtual education modality



Source: Rojas, Drakes, Pineda, (2020), survey of demographic data and on the virtual education modality.

Analysis and interpretation of the results: according to the perception of performance as a teacher using the virtual education modality, two (2) of the teachers corresponding to 7% indicate that they have had an outstanding performance. Three (3) teachers indicate that they have had a high performance, corresponding to 10%. Fourteen (14) teachers (48%) indicated that they have had an average performance. Contrastingly, nine (9) teachers indicate that they have had a low performance, corresponding to 31%. Finally, one (1) teacher indicates that he/she has had a poor performance, and he/she corresponds to the remaining 4% of the teachers.

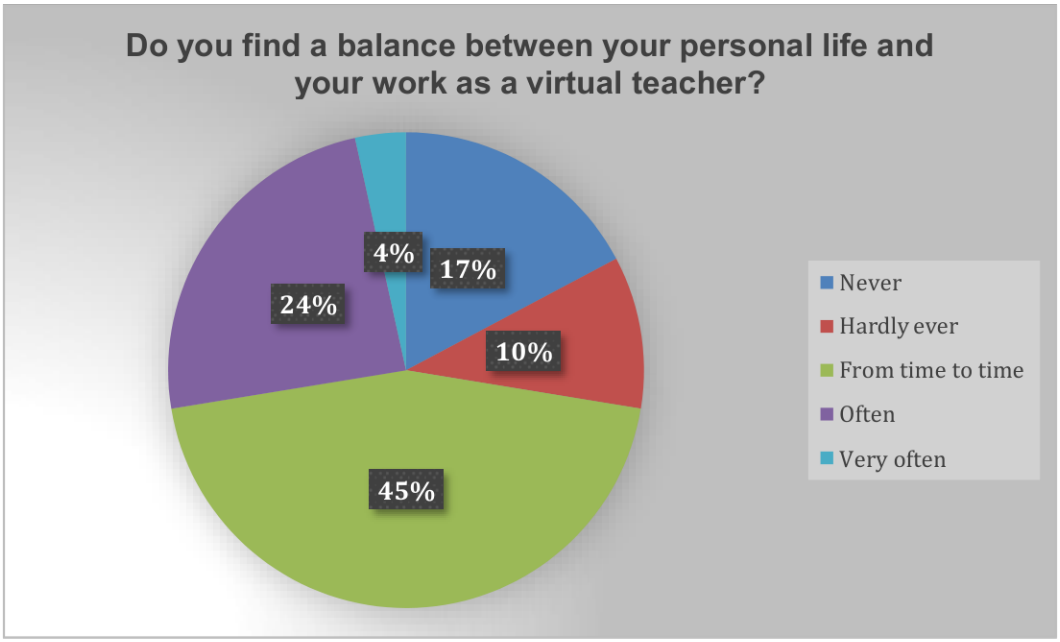
Graph 6: Do you have the appropriate technological tools to provide virtual classes?



Source: Rojas, Drakes, Pineda, (2020), survey of demographic data and on the virtual education modality.

Analysis and interpretation of the results: twenty-three (23) teachers, corresponding to 79% mentioned that they have the appropriate technological tools to provide classes under the virtual modality and six (6) teachers, corresponding to 21% stated that they do not have the appropriate technological tools.

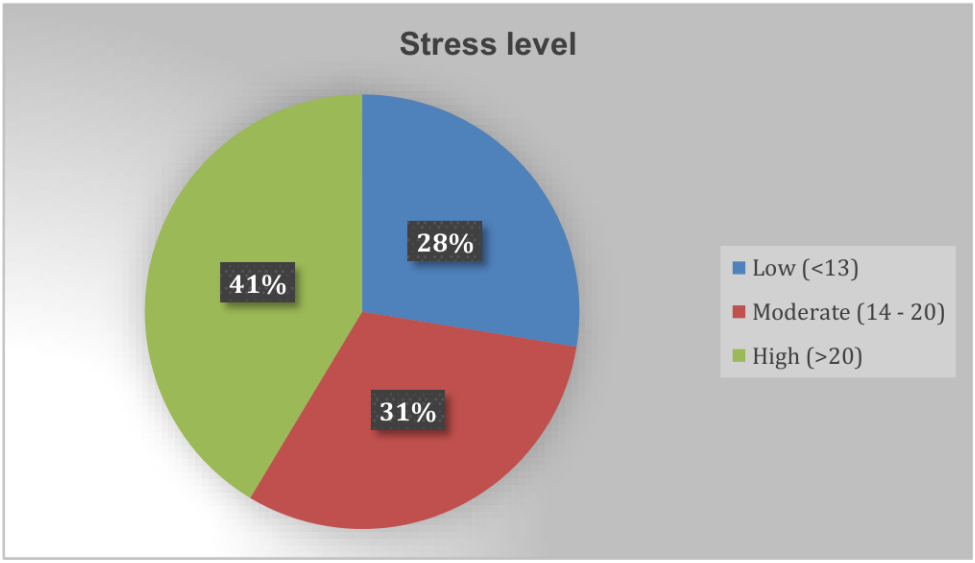
Graph 7: Do you find a balance between your personal life and your work as a virtual teacher?



Source: Rojas, Drakes, Pineda, (2020), survey of demographic data and on the virtual education modality.

Analysis and interpretation of the results: according to the comments made by the teachers, the frequency in which they find a balance between their personal life and their work as virtual teachers is as follows. Five (5) teachers mentioned that they never find a balance, which corresponds to 17%. Three (3) teachers mentioned that they almost never and this corresponds to 10%. Thirteen (13) teachers, corresponding to 45%, mentioned that from time to time they find the balance. Seven (7) teachers mentioned that they often do, corresponding to 24%. Lastly, one (1) teacher mentioned that he/she very often finds the balance, and he/she corresponds to the remaining 4%.

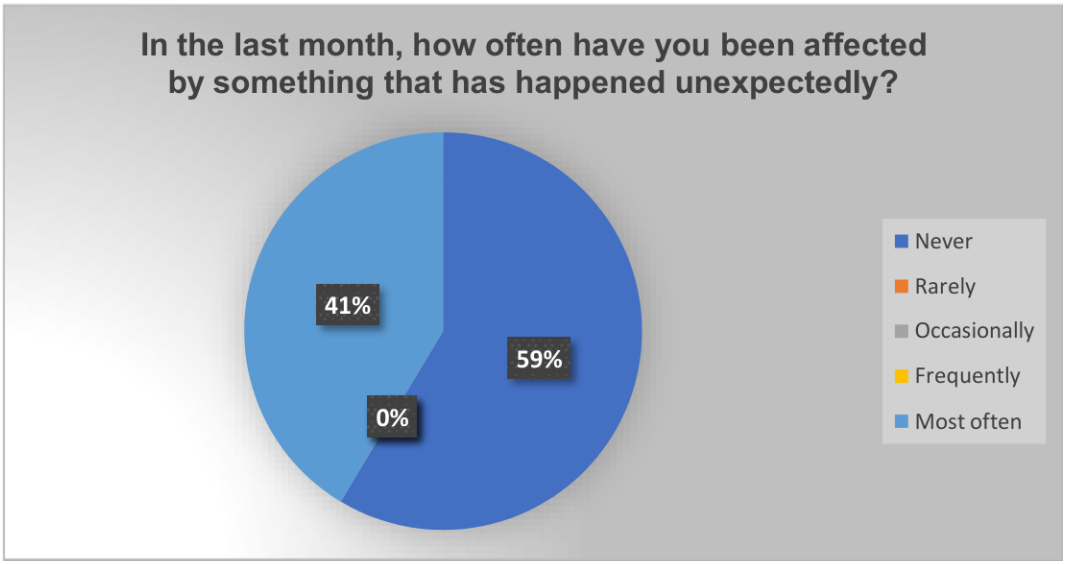
Graph 8: Stress level



Source: Rojas, Drakes, Pineda, (2020) Perceived Stress Scale (PSS).

Analysis and interpretation of the results: eight (8) teachers, corresponding to 28%, present a low stress level given their score is below 13. Nine (9) teachers present moderate stress, corresponding to 31%, given their score is between 14 and 20 on the scale. Twelve (12) teachers have a high level of stress, corresponding to 41% and according to their score, it is over 20.

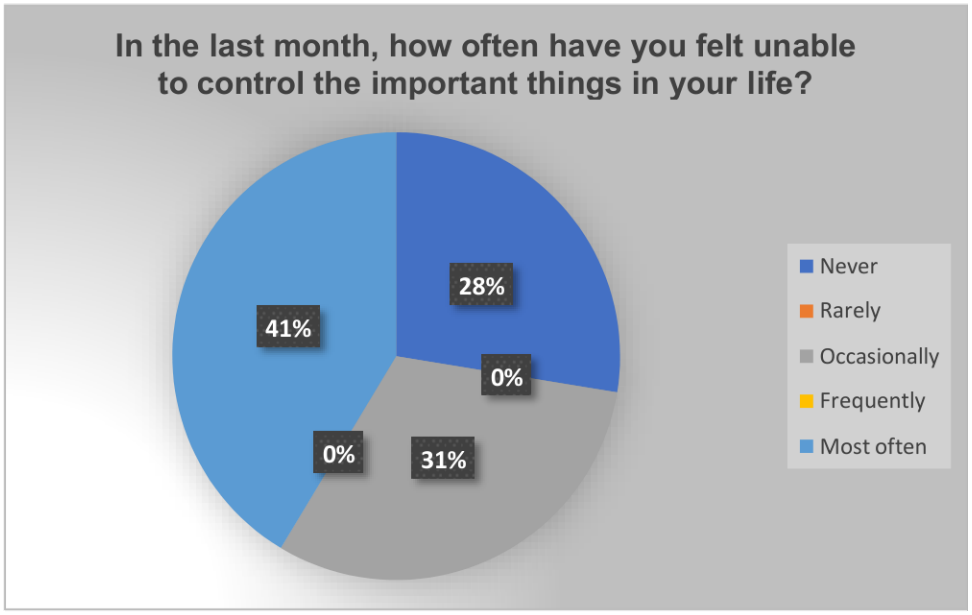
Graph 9: In the last month, hoe often have you been affected by something that has happened unexpectedly?



Source: Rojas, Drakes, Pineda, (2020) Item 1 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: regarding the item on the frequency in which they have been affected by something that has happened unexpectedly, seventeen (17) teachers, corresponding to 59% mentioned that they have never felt affected and twelve (12), corresponding to 41% expressed feeling affected very often.

Graph 10: In the last month, how often have you felt unable to control the important things in your life?



Source: Rojas, Drakes, Pineda, (2020) Item 2 of the Perceived Stress Scale (PSS).

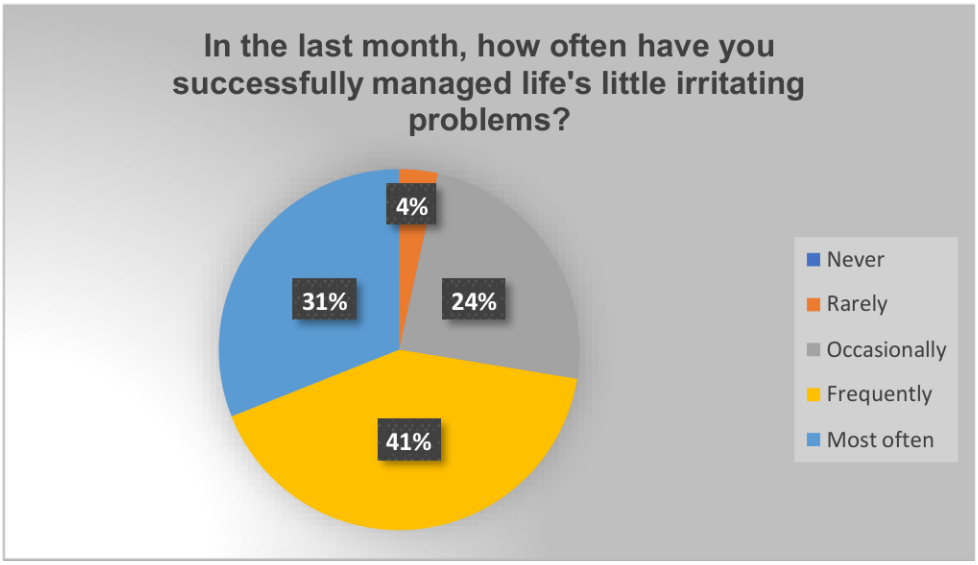
Analysis and interpretation of the results: in relation to the item on the frequency in which they have felt unable to control the important things in their lives, eight (8) teachers, corresponding to 28% mentioned that they have never felt unable to control things in their lives. Nine (9) teachers, corresponding to 31% selected a frequency of occasionally. While twelve (12) teachers (41%) expressed feeling this way very often.

Graph 11: In the last month, how often have you felt nervous or stressed?

Source: Rojas, Drakes, Pineda, (2020) Item 2 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on the frequency in which teachers expressed whether they have felt nervous or stressed, fifteen (15) teachers mentioned that they almost never, corresponding to 52%. Eight (8) teachers (31%) said that they occasionally feel nervous or stressed. Five (5) teachers (17%) stated that they frequently feel nervous or stressed.

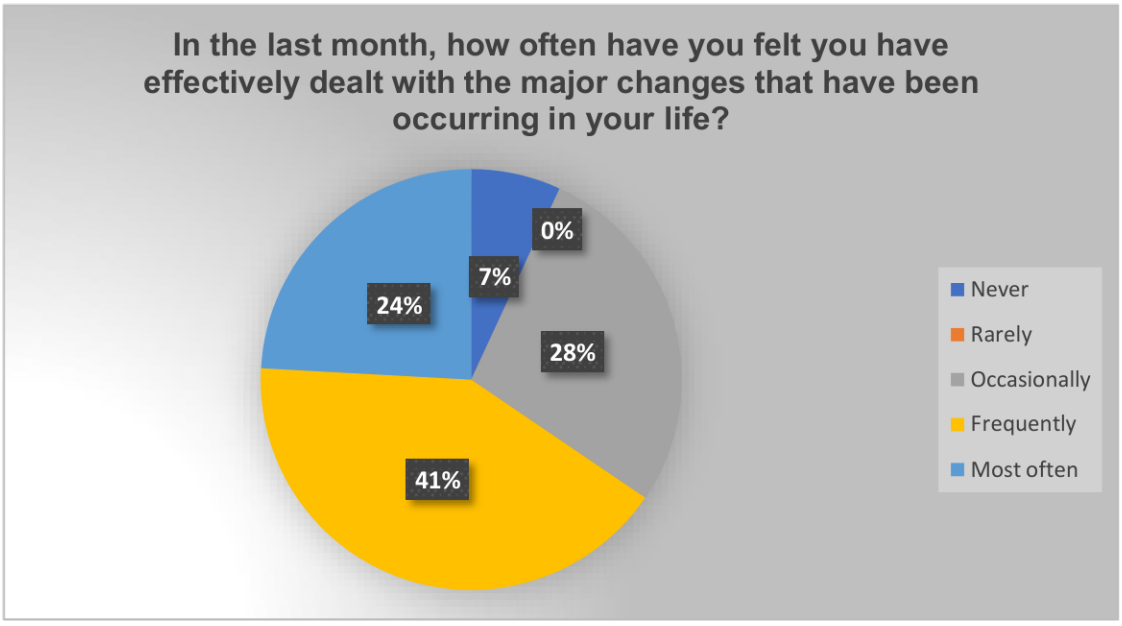
Graph 12: In the last month, how often have you successfully managed life's irritating problems?



Source: Rojas, Drakes, Pineda, (2020) Item 4 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on the frequency with which they have successfully managed small irritating life problems, one (1) teacher, corresponding to 4%, mentions that he/she almost never, seven (7) corresponding to 24% of the teachers, mention that occasionally. While twelve (12) teachers (41%) expressed that they frequently handle small problems successfully and nine (9) teachers (31%) said that very often have successfully managed small irritating life problems in their life.

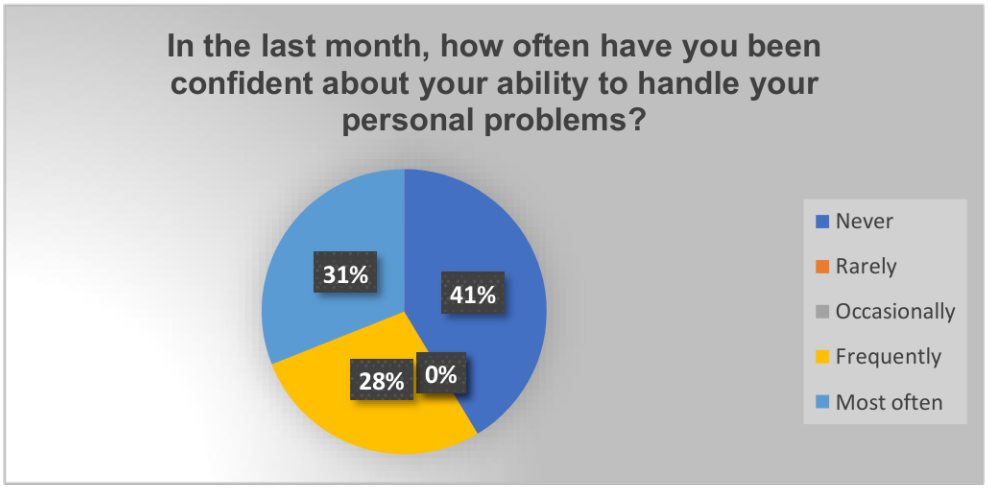
Graph 13: In the last month, how often have you felt you have effectively dealt with the major changes that have been occurring in your life?



Source: Rojas, Drakes, Pineda, (2020) Item 5 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on the frequency in which they have felt that they have effectively faced the important changes that have been occurring in their lives, two (2) teachers, corresponding to 7% mentioned that they have never. Eight (8), corresponding to 28% of the teachers selected the option of occasionally. Twelve (12) teachers, corresponding to 41%, expressed that they often feel that they deal effectively with changes and seven (7) teachers, corresponding to 24%, mentioned that they deal with such changes very often.

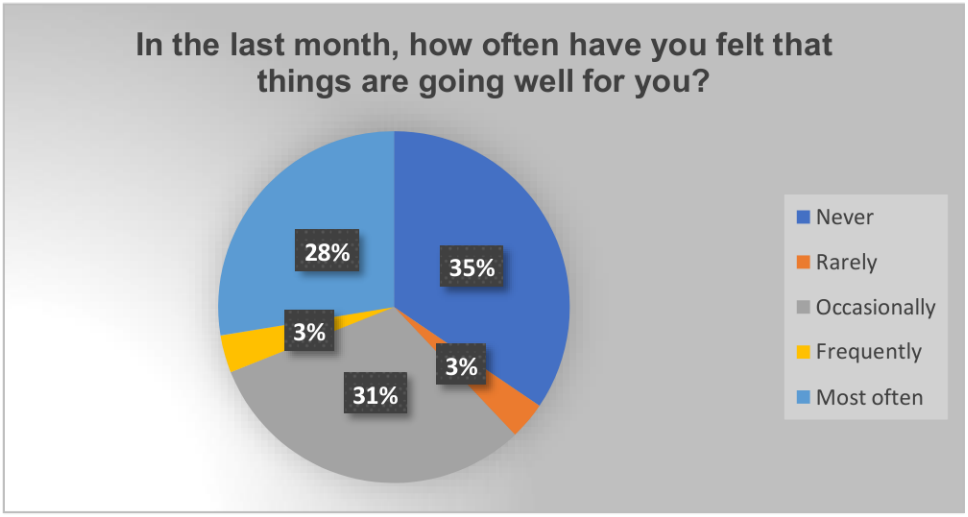
Graph 14: In the last month, how often have you been confident about your ability to handle your personal problems?



Source: Rojas, Drakes, Pineda, (2020) Item 6 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on how often they have been confident about their ability to handle their personal problems, twelve (12) teachers, corresponding to 41%, mentioned never. Eight (8) teachers, corresponding to 28% selected “frequently” and nine (9) teachers, corresponding to 31% chose very often.

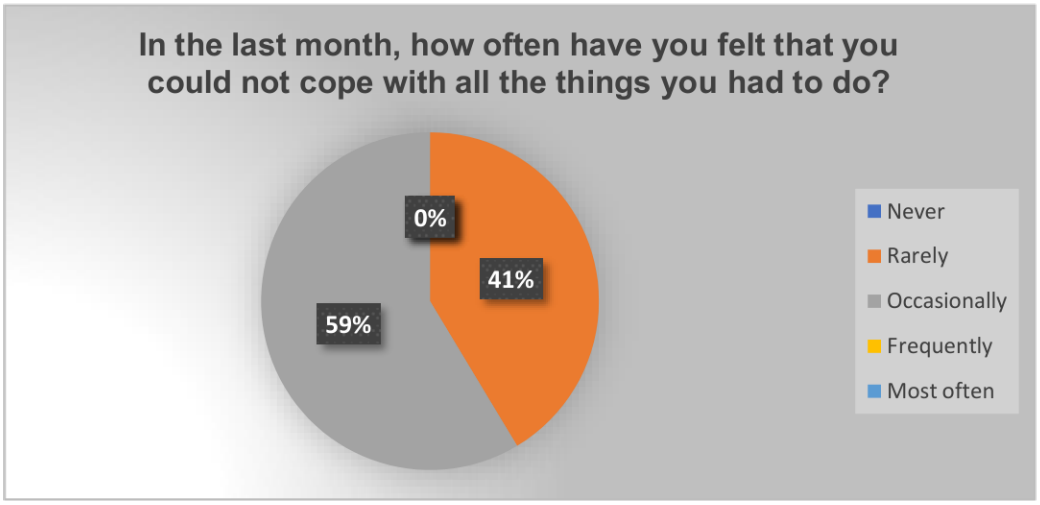
Graph 15: In the last month, how often have you felt that things are going well for you?



Source: Rojas, Drakes, Pineda, (2020) Item 7 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on the frequency with which they felt that things were going well, ten (10) teachers (35%) mentioned never, one (1) teacher (3%) selected almost never. Nine (9) teachers, corresponding to 31%, said occasionally, one (1) teacher, corresponding to 3%, said frequently and eight (8) teachers, corresponding to 28%, said very often.

Graph 16: In the last month, how often have you felt that you could not cope with all the things you had to do?



Source: Rojas, Drakes, Pineda, (2020) Item 8 of the Perceived Stress Scale (PSS).

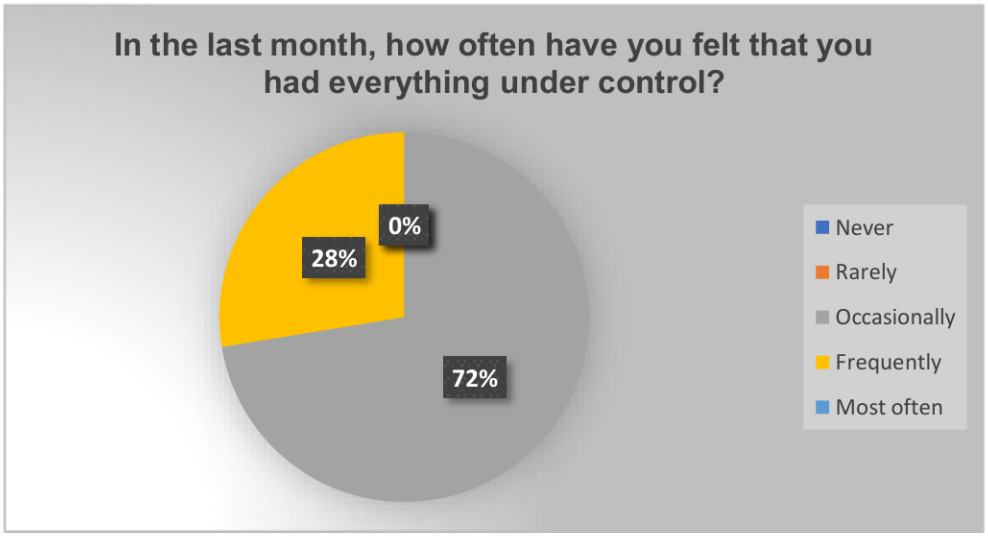
Analysis and interpretation of the results: regarding the item on the frequency with which they felt they could not cope with all the things they had to do, twelve (12) teachers (41%) mentioned that they almost never and seventeen (17) (59%) mentioned that they felt this way occasionally.

Graph 17: In the last month, how often have you been able to manage the difficulties in your life?

Source: Rojas, Drakes, Pineda, (2020) Item 9 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on the frequency with which they have been able to control the difficulties in their lives, twenty-nine (29) teachers, corresponding to 100%, selected the option of “occasionally”.

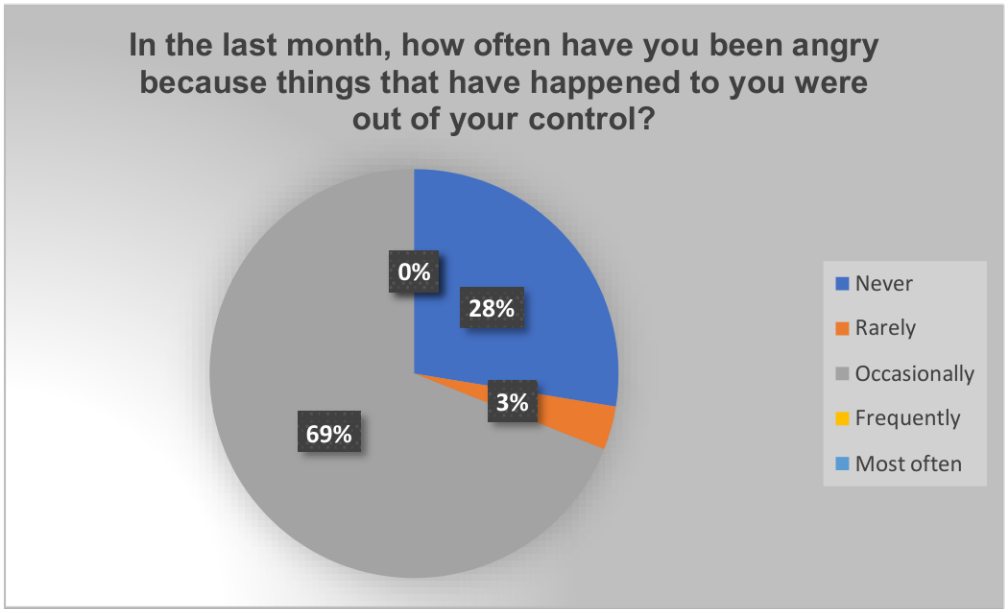
Graph 18: In the last month, how often have you felt that you had everything under control?



Source: Rojas, Drakes, Pineda, (2020) Item 10 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on the frequency with which they felt they had everything under control, twenty-one (21) teachers (72%) mentioned that from time to time and eight (8) teachers (28%) selected the option of “often”.

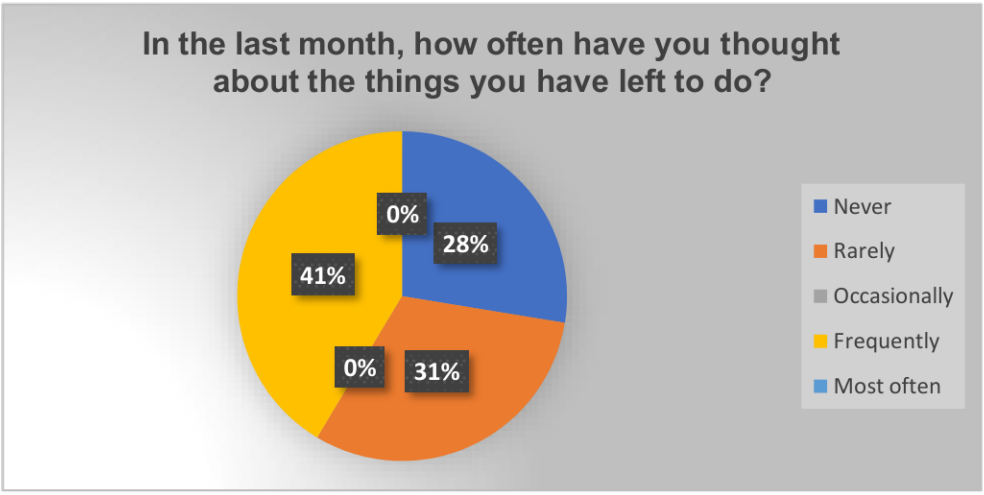
Graph 19: In the last month, how often have you been angry because things that have happened to you were out of your control.



Source: Rojas, Drakes, Pineda, (2020) Item 11 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: regarding the item on how often they have been angry because things that have happened to them were out of control, eight (8) teachers corresponding to 28% mentioned never, one (1) teacher, corresponding to 3% selected "almost never" and twenty (20) teachers, corresponding to 69% selected the option of "occasionally".

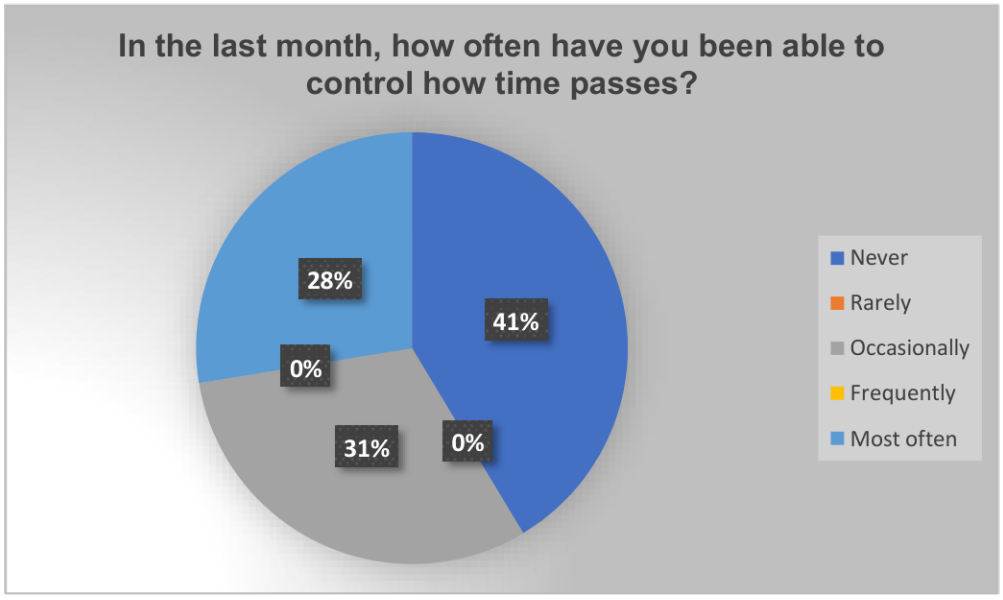
Graph 20: In the last month, how often have you thought about the things you have left to do?



Source: Rojas, Drakes, Pineda, (2020) Item 12 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: in relation to the item on the frequency with which they have thought about the things left to do, eight (8) teachers, corresponding to 28% selected “never”, nine (9) teachers, corresponding to 31% selected “almost never” and twelve (12) teachers, corresponding to 41% selected “frequently”.

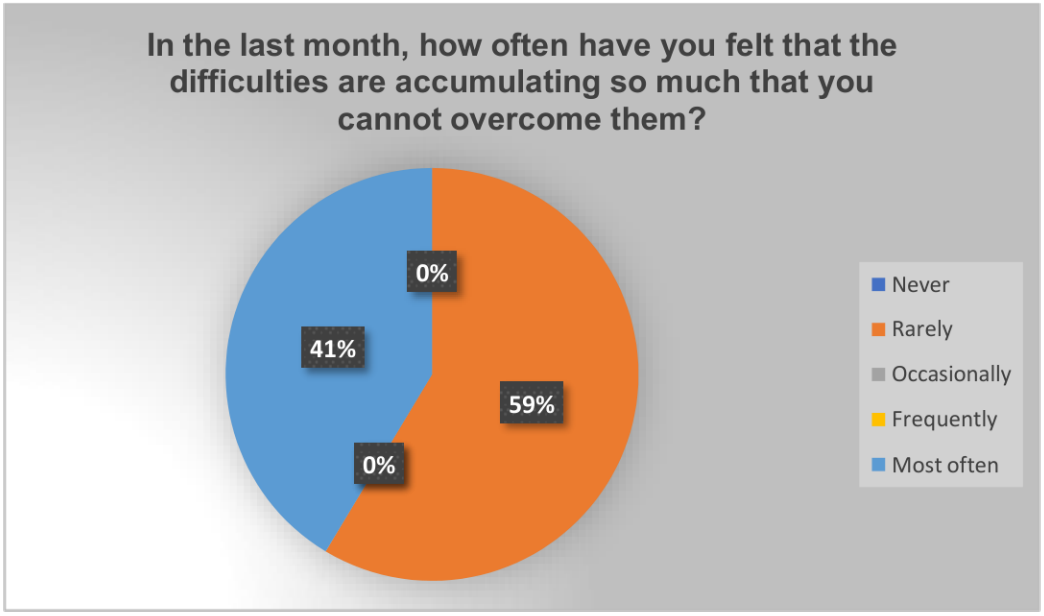
Graph 21: In the last month, how often have you been able to control how time passes?



Source: Rojas, Drakes, Pineda, (2020) Item 13 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: regarding the item on the frequency in which ask if they have been able to control the way they spend their time, twelve (12) teachers, corresponding to 41% selected "never", nine (9) teachers, corresponding to 31% selected "occasionally" and eight (8) teachers, corresponding to 28% selected a frequency of "very often".

Graph 22: In the last month, how often have you felt that the difficulties are accumulating so much that you cannot overcome them?



Source: Rojas, Drakes, Pineda, (2020) Item 14 of the Perceived Stress Scale (PSS).

Analysis and interpretation of the results: regarding the item on the frequency in which they have felt that difficulties accumulate so much that they cannot be overcome, seventeen (17) teachers (59%) selected “almost never” and nine (9) teachers (41%) expressed “very often”.

Conclusions

The results of this research showed the following data. First, Regarding the technological tools available for teaching, most of the teachers indicated that they have the appropriate technological tools to provide classes under the virtual education modality. Second, with regard to teaching performance under virtual modality, 7% of the teachers indicated that their performance has been outstanding, while 10% considered their performance as good. Meanwhile, 48% stated that their performance was average, and 31% graded their performance as low. Finally, the remaining 4% of the teachers indicated that their performance was deficient.

Concerning the management of the balance between work performance and personal life under the virtual education modality, 27% of the teachers selected the frequencies "never" and "almost never" in their answers, while 45% chose the answers that indicate that "from time to time" they find the balance between their work and personal life. On the other hand, 24% stated that "often" and 4% that "very often" they find balance between their work performance and personal life.

The responses selected by the teachers indicate that most of them are unable to find a balance between their work performance in the virtual education modality and their personal life. The information provided by the teachers is indicative of the difficulty most of them have in balancing their work and personal lives. Having to dedicate more time to teaching in their virtual modality results in a decrease in the time they can dedicate to their personal life, resulting in increased stress.

The 29 teachers who participated in this study have presented different levels of perceived stress, according to the results of the Perceived Stress Scale (PSS). Twenty-eight percent of the teachers had a low level of stress, while 31% had a

moderate level and the remaining 41% had a high level. Among the aspects that the teachers considered cause them stress frequently are the following: Most of the teachers who participated in this research stated that the virtual teaching modality affected them negatively, both in their work performance and in their personal lives. They indicated that it was very difficult for them to teach under the virtual modality, since they did not feel adequately prepared for the management of digital tools for distance teaching. The teachers experienced a sudden change, as they went from face-to-face communication with the student to distance communication through tools such as Zoom, Microsoft Team and WhatsApp. This sudden change caused them an increase in their stress level, as they were not prepared for it. In addition, they expressed that this also affected their personal life, due to the amount of time they had to invest in learning how to use these tools. Only 10% of the teachers stated that teaching in the virtual modality did not cause them an increase in stress compared to face-to-face teaching.

As presented in the theoretical framework, the phenomenon of stress impacts all aspects of an individual's life. In this study, the stress presented by teachers not only impacts them, but also the students, parents, colleagues and even their families. It is therefore necessary to take actions in favor of teachers so that they can provide quality education with an integrated physical and psychological health.

Recommendations

- ITC Seminars

It is important that teachers learn and update their knowledge and skills regarding the new ITC through workshops, tutorials or seminars.

- E-learning Training

Electronic learning training is necessary for the teachers to learn how to adapt the learning process to the distance education modality.

- Professional Health Guidance

Psychologist and other health professionals can help prevent stress related conditions and disorders through therapy and guidance.

- Technical Support Staff

There must be a specialized technical support staff to help the teachers with the management and maintenance of the ICT.

- Collaborative and Cooperative Teamwork

Team work must be encouraged between the teachers, to promote cooperation and collaboration to solve problems and develop new ideas.

- Proper ITC tools.

Technology advances fast, so it is important that the ITC tools available to teachers and students, have both their software and hardware up-to-date.

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Annexes

ISAE UNIVERSITY

FACULTY OF EDUCATION SCIENCES AND HUMANITIES

DEGREE IN ENGLISH

SURVEY OF DEMOGRAPHIC AND E-LEARNING DATA

Students: Tabita Rojas - Claire Drakes - Rosalma Pineda

Description: Dear teachers, we appreciate your participation in the following survey that aims to know your demographic data, allowing us to process and analyze them to present the results in a general way. Your information will be handled confidentially and for academic purposes.

1. Please select the age range in which you are being surveyed.
   a) 18 to 28 years old
   b) 29 to 38 years old
   c) 39 to 48 years old
   d) 49 years of age or older
2. Select your gender.
   a) Male
   b) Woman
3. Select your academic level.
   a) High School
   b) Degree
   c) Postgraduate
   d) Master's degree
   e) Doctorate
4. Select your length of service in the current educational center where you work.
   a) Less than 1 year
   b) More than 1 year

5. According to your perception, how do you evaluate your performance as a teacher using the virtual education modality?
    a) Outstanding performance
    b) High performance
    c) Average performance
    d) Low performance
    e) Poor performance
6. Do you have the appropriate technological tools to provide classes under virtual mode?
    a) Yes
    b) No
7. Do you find a balance between your personal life and your work as a virtual teacher?
    a) Never
    b) Hardly ever
    c) From time to time
    d) Often
    e) Very often

Perceived Stress Scale

The questions on this scale refer to your feelings and thoughts during the past month. In each case, please indicate with an "X" how you have felt or thought about each situation.

Never (0) Hardly ever (1) Occasionally (2) Often (3) Very often (4)

1. In the last month, how often have you been affected by something that has happened unexpectedly?

0 1 2 3 4

2. In the last month, how often have you felt unable to control the important things in your life?

0 1 2 3 4

3. In the last month, how often have you felt nervous or stressed?

0 1 2 3 4

4. In the last month, how often have you successfully managed life's little irritating problems?

0 1 2 3 4

5. In the last month, how often have you felt you have effectively dealt with the major changes that have been occurring in your life?

0 1 2 3 4

6. In the last month, how often have you been confident about your ability to handle your personal problems?

0 1 2 3 4

7. In the last month, how often have you felt that things are going well for you?

0 1 2 3 4

8. In the last month, how often have you felt that you could not cope with all the things you had to do?

0 1 2 3 4

9. In the last month, how often have you been able to manage the difficulties in your life?

0 1 2 3 4

10. In the last month, how often have you felt that you had everything under control?

0 1 2 3 4

11. In the last month, how often have you been angry because things that have happened to you were out of your control?

0 1 2 3 4

12. In the last month, how often have you thought about the things you have left to do?

0 1 2 3 4

13. In the last month, how often have you been able to control how time passes?

0 1 2 3 4

14. In the last month, how often have you felt that the difficulties are accumulating so much that you cannot overcome them? 0 1 2 3 4

Letter of Final Reading of Dissertation

This Is to certify that this thesis entitled, **"PERCEIVED STRESS LEVEL IN TEACHERS USING VIRTUAL EDUCATION IN THE PRIVATE EDUCATIONAL CENTER IN PANAMA EAST**." Prepare and submitted by Claire Drakes, Tabita Rojas, Rosalma Pineda has fulfilled the requirements for the bachelor degree in English.

This certifies that the undersigned has reviewed and went through all the pages of the thesis/research paper and it is aligned with the set of structural rules that govern the composition of sentences, phrases and words in the English Language.

Signed the 18th of May, 2021

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ISAE UNIVERSIDAD

Legalmente autorizada mediante Decreto Ejecutivo No. 272 del 27 de mayo de 1994 en virtud de la potestad otorgada por las leyes de la República de Panamá y por haber cumplido con los requisitos reglamentarios de la carrera respectiva

Hace constar que:

José Luis Arjona

Cédula No. 8-859-1767

Ha terminado los estudios y cumplido con los requisitos prescritos para obtener el grado de

Licenciatura en Inglés con énfasis en Traducción

y en consecuencia, se le ha concedido tal grado con todos los derechos y privilegios respectivos, en testimonio de lo cual se le expide este título en la Ciudad de Panamá, a los 14 días del mes de enero de 2019.

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