

**E learning in Virtual and Distance Education and its Influence on the  
High- Level Students' Mental Health**

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## **Dedication**

Dedicated to my friend Juan Dario Cook.

### Specialized Analytical Summary

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Contents	<p>El siguiente estudio fue realizado con una metodología de investigación mixta, para el cual se realizó una encuesta a doce estudiantes de educación superior que actualmente se encuentran estudiando a distancia para conocer su testimonio y opinión acerca de cómo les ha influido psicológicamente una carrera universitaria virtual. El análisis y presentación de este estudio tiene como propósito mostrar lo importante que</p>

	<p>es la prevención de trastornos mentales generados por el estrés de los estudios superiores, de egresar de la universidad y así poder obtener una mejor calidad de vida. Adicionalmente, este estudio trae consigo ciertos beneficios para el lector, como la exhortación de la relevancia de la salud mental y emocional de los estudiantes de educación superior. Cabe resaltar también, la importancia de la toma de acción, el buscar sobre posibles tratamientos y consejerías que prevengan estos estudiantes de educación superior de padecer estas patologías, por ejemplo, y hacer que el lector se identifique con las historias de estos estudiantes y que de esta manera se sienta comprendido y de alguna manera ayudado.</p>
<p>Research Line</p>	<p>Virtual education and its influence and consequences in the mental health of university students.</p>
<p>Conclusions</p>	<p>To conclude, from this research according to the previous studies and investigation, it was found that most of the university or high education students between 21 and 30 who are studying their careers virtually and at distance suffered of anxiety, stress and depression as a result of virtual education, the social isolation and the studies and work pressures. In addition, as a possible solution to this, it is important that universities, teachers, and parents bring their support to these students through psychological counseling programs that promote the importance of</p>

	emotional stability and mental health and that provide them tools to motivate them to continue with their studies and to work to make their dreams come truth.
Advisor	Edith Grande Trivino

### **Abstract**

The following study is based on the responses to a survey given by twelve higher education students who are currently studying at a distance to know their testimony and opinion about how a university degree virtually has influenced them psychologically.

The analysis and presentation of this study have the purpose of showing the importance of the prevention of diseases and mental disorders generated by the stress of higher studies, of passing the various courses of the same, of graduating from university and thus being able to get a better job to have a better quality of life.

Additionally, this study brings with it certain benefits for the reader, such as reflection regarding the importance of mental and emotional health not only in the academic aspect, but also in the personal aspect, the importance of informing about possible treatments and counseling that prevent these higher education students from suffering from these pathologies, and make the reader identify with the stories of these students and that in this way he or she feels understood and in some way helped.

**Keywords:** Academic emotions, e-learning, academic and work pressures, academic performance, mental health.

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## **Introduction**

Globalization together with the new information technologies revolutionized all aspects of human life, this including, of course, the academic and educational aspect for teachers, employees, and students, especially for high academic level students. At present, traditional teaching methods are being replaced by innovative and virtual methods such as b learning, which is increasingly enhancing job and academic competitiveness. Despite recent growth in technology-based distance education research, much less attention has been directed towards studies than the student experience and how such experience is affected by variables such as the post-secondary transition process (Bereiter, 2003; Bernard, Yiping, & Abrami, 2002; Garrison & Anderson, 2003).

In addition to, Since March of 2020, factors such as work and academic skills that are taught and required through virtual courses, along with social distancing, the imbalance between social and work life and the lack of interaction with other people are generating in many higher education students' various pathologies, mostly psychological such as anxiety, depression, stress, among others. To seek possible solutions to treat these pathologies and those they do not negatively affect higher education students; a survey will be carried out on twelve of these students and they will present the main concepts and aspects related to this study.

### **Significance of the Study**

The following research is based on a survey given by twelve higher education students who are currently studying at a distance, to know their testimony and opinion about how studying a university degree virtually has influenced them psychologically. The analysis and presentation of this study has the purpose of showing the importance of the prevention of diseases and mental disorders generated by the stress of higher studies, of passing the various courses of the same, of graduating from university and thus being able to get a better job to have a better quality of life. Additionally, this study put into consideration the importance of mental and emotional health not only in the academic aspect, but also in the personal aspect, the importance of informing about possible treatments and counseling that prevent these higher education students from suffering from these pathologies, and make the reader identify with the stories of these students and that in this way he or she feels understood and, in some way, helped.

### **Statement of the Problem**

This document presents, study and analyze the psychological and emotional impact of virtual education in higher education students. Additionally, other factors in the lives of these university students will be analyzed, such as the pressures and demands that are seen daily in academic field and how these can often generate various pathologies such as anxiety, stress, and depression. To study in detail these, a survey will be carried out on 12 young university male students from the city of Medellin of Colombia, who are studying or who have studied their careers virtually to collect data with the aim of create possible alternatives that provide help and assistance to these young people so that they do not lose the motivation. This research is guide by the following problem questions: How virtual education affect them psychologically? How can universities support these students with their mental health?

## **Objectives**

### **General Objective**

To inform about the importance of mental health in high education students.

### **Specific Objectives**

To investigate how virtual education can caused anxiety, stress, or depression in university students and how they could be supported by their universities to prevent these disorders.

## Literature Review

Pour et al., (2019). E- learning is an application of IT that is widely used in the educational sector.

Carliner (2004). Online learning refers to learning and other supportive resources that are available through a computer.

Hedge and Hayward (2004) define E-learning more specifically as an innovative approach for delivering electronically mediated, well-designed, learner-centered and interactive learning environments to anyone, anywhere, anytime, commonly known as the tripe A's learning by utilizing the Internet and digital technologies in conjunction with instructional design principles.

Sauer (2001). E learning can both be highly interactive and simultaneously isolating because of the inherent difficulties of developing cohesiveness and true connectedness among students.

Keller et al., (2007), Tarhini et al., (2016). E-Learning is the use of Information and Communication Technology (ICT) to deliver information for education where instructors and learners are separated by distance, time, or both in order to enhance the learner's learning experience and performance.

Fry (2001). Technology based e-learning encompasses the use of the internet and other important technologies to produce materials for learning, teach learners and also to regulate the courses in an organization.

Abbad et al (2009). E-learning refers to the use of information and communication technologies to enable the access to online learning/teaching resources.

Smedly (2010). The adoption of e-learning provides the institutions as well as their students or learners the much flexibility of time and place of delivery or receipt of according to learning information.

Hameed et al (2008). E-learning, despite the advantages that it has when adopted in education also has some disadvantages. Studies support that e-learning process some disadvantages.

Wu & Hwang, (2010). E-learning is defined as the use of the Internet or other computer networks to obtain pedagogical content or in lecturer-student contact, according to the literature.

Bryn, H., Jhon, G (2006). E-learning is now an essential component of education. Using examples from around the globe, the authors of E-Learning provide an in-depth examination of past and future e-learning approaches and explore the implications of applying e-learning in practice.

Purva, C (2012). E-learning is a variety of ICT techniques that can be used by a creative manner to enhance the teaching methods and improve the learning styles of both teachers and learners. These tools are implemented to provide effective and inspiring learning environment for EFL learners. Also, they are used to make students more excited about learning and achieving knowledge. Such e-tools are providing a remarkable mixture or blend of digital technologies and English language learning.

Choi, B (2016). Adapting and adopting e-learning tools in language teaching and other fields in general assists in advancing the process of transmitting knowledge to learners, retrieving information and as a medium of communication.

(Jorge et al. 2006). E-learning is also called online learning, web-based learning, distributed learning, computer-assisted instruction, or Internet-based learning.

Gleason, N. W (2018). The trend of E-learning as a form of implementing Information and Communication Technology (ICT) is an extraordinary and interesting choice in the digital era because there is no time and place limit for the course of the education and learning process.

Singh, Kumar, and Lakhanpal, (2021). E-learning is an independent education procedure that adopts and uses media and an innovative tool to sustain education.

Lim et al., (2018), Tsakeni, (2021). Learning through the use of computer networks (intranet and extranet) for teaching materials, interaction, and/or facilitation is known as e-learning. E-learning is a great tool for increasing teaching and learning quality.

Mustafa, (2020). E-learning is commonly referred to as the international use of networked information and communication technology in teaching and learning which includes, virtual learning, distributed learning, network and web-based learning.

Bhuasiri et al., (2012). Learner characteristics, teacher characteristics, E-learning environment, quality of institutions and services, quality of infrastructure and systems, quality of courses and material, and motivation are seven elements of E-learning success.

Kaisara & Bwalya, (2020). Well-designed courses, curricula, and learning materials are the primary components that can influence learning success in developing nations based on these aspects. Computer skills, technical background, training programs, and computer literacy for faculties/schools are also key variables in implementing E-learning in underdeveloped nations, according to this study.

Alghamdi, A et al (2024). According to this study made in South Arabia it was found that factors such as the work, social and academic environment has a huge influence in the way students interact and use the technology like the e-learning method to learn and work.

Amin, S., Uddin, M. I., Mashwani, W. K., Alarood, A. A., Alzahrani, A., & Alzahrani, A. O. (2023). In recent years, the proliferation of Massive Open Online Courses (MOOC) platforms on a global scale has been remarkable. Learners can now meet their learning demands with the help of MOOC. However, learners might not understand the course material well if they have access to a lot of information due to their inadequate expertise and cognitive ability. Extensive experiments on a MOOC dataset such as the 100 K Coursera course review validate the proposed DRR model, demonstrating its superiority over baseline models in major evaluation metrics for long-term recommendations. The outcomes of this research contribute to the field of e-learning technology, guiding the design and implementation of course RSs, to facilitate personalized and relevant recommendations for online learning students.

Al-Aroud, B., Yunus, K., & Migdadi, H. F. (2022). The findings of the study have documented that e-learning tools entail a great degree of flexibility and variability, visual knowledge compared to conventional teaching materials and lectures, which are most often unsatisfactory and might not relate to EFL learning. 87% of the respondents revealed that using e-learning tools (MOOCs) affected their language skills' development positively. In addition, the findings indicated that 90% of the respondents pointed out that these e-learning tools /MOOCs assist language learners and make language-learning fun and meaningful. The findings of this study revealed that the foremost factors affecting EFL students' approval and use of e-learning tools were facilitating conditions, social influence, effort expectancy and performance expectancy. Such findings revealed the significance of e-learning tools from the point of view of this mixed-method research. The findings indicated that past experiences relevant influenced EFL Jordanian undergraduate students at Yarmouk University use of e-learning tools / MOOCs when learning English language.

Rahman, M.A.A. , Salim, M.H.M. , Ali, N.M (2023). E-learning is seeing a significant rise in terms of use in initial or continuing education. At first glance, it seems necessary for the authors to take an interest in the different definitions proposed for this term, although this does not necessarily lead to a consensus in the existing literature.

H Li, J. Masters (2009). E-learning has grown in significance as an educational tool just like technology has developed and progressed over the years. Interestingly, there have been more efforts at advancing technology than on attempting to understand the needs and learning styles of individual learners and instructional design. The 21<sup>st</sup> century has seen rapid progress with such things as the Internet and online learning.

Kumbhar (2009). Defined e-learning as a learning system supported by technology. It depends on computer devices, smart devices, networks, telecommunication, sharing, storage technology and virtual meeting tools.

Singh, O'Donoghue and Worton, (2005). Technological innovations have not only brought benefits to business, but to Higher Education Institutions (HEIs) where an unprecedented demand for tertiary education has seen students enrolling for courses, some doing so through distance education. This has made the internet a very significant and indispensable learning and business tool for information dissemination for both education purposes and business transactions. The Internet is a technological development that has the potential to change not only the way society retains and accesses knowledge but also to transform and restructure traditional models of higher education, particularly the delivery and interaction in and with course materials and associated resources. Utilizing the Internet to deliver e-learning initiatives has created expectations both in the business market and in higher education institutions.

Hameed et al (2008). E-learning is important for education because it can improve the quality of the learning experience and extend the reach of every lecturer and tutor. It can help remove barriers to achievement, by providing new and creative ways of motivating and engaging pupils and learners of all abilities, enabling, and inspiring everyone to attain their educational potential. E-learning can support learning by offering differentiated learning, particularly for those who need support in literacy, numeracy, and ICT. It offers a wide range of tools to enable teachers and learners to be innovative, creative, and resourceful in all learning activities. Teachers and learners can easily customize digital learning resources to suit pace and level, appropriate to any learning style and ability. E-learning creates on-line communities of practice. The internet can bring learners, teachers, specialist communities, experts, practitioners, and interest groups together to share ideas and good practice. It can provide an individualized learning experience for all learners, including those who are disadvantaged, disabled, exceptionally gifted, have special curriculum or learning needs or who are remote or away from their usual place of learning.

Rowh, (2007). The biggest advantage of learning online is that students can do it on their own time and at their own pace. Assignments have due dates, but students can complete them in advance if they like or during lunch breaks, or even while having their morning coffee in pajamas. Convenience and flexibility are important factors when it comes to students choosing online courses.

Rotar, (2017). A great deal of discussion has centered around whether older students using online programs to change careers or further their current careers need even greater support that may not be available through the format. Debates have ensued over whether older students have enough independent motivation when returning to and having to adjust to the academic environment to succeed in an online platform.

McMahon, M (2023). One of the first forms of e-learning included a video/audio system that transferred course material from one place (a provider classroom) to several others. Even though students were enrolled in the same class, they attended class in different designated places, thus learning synchronously—at the same time—with others. Most schools moved away from this method as technology improved though this style of learning was popular during distance learning during the COVID-19 pandemic.

Czepula et al., (2018). E-learning practices have become increasingly popular in educational systems worldwide because they provide students with more engaging and effective instruction customized to their specific needs.

Clark and Mayer, (2016). E-learning has several advantages over traditional classrooms -based learning, such as more flexibility and accessibility, personalized learning experiences and cost savings for both learners and educational institutions.

Dahal, (2022); Means et al., (2013). E-learning provides more information and multiple online free educational resources.

Cidral et al., (2018). E- leaning mainly provides students with a personalized and flexible way to study and learn.

Farid et al. (2018). The future of E-learning depends on the quality of E-learning systems.

Agariya and Singh (2012). Stated that E.learning quality is the gap between students experience with the offered E-services and their expectations.

Martínez-Caro et al. (2014). E-learning quality can be defined as the degree to which educational authorities meet stakeholders' needs or expectations.

Nikolić et al., (2018). Two angles of identifying the quality of E-learning have been observed in literature. These are the quality of the software or platform for the realization of education, and the quality of the education process itself.

Kusumawati (2022); Maqbool et al., 2022; Omari et al., (2023). During the pandemic, online learning has positively and negatively impacted both parties, namely teachers and students. Positive impacts include easy access to learning materials and assignments, providing opportunities to explore new materials, and enabling the development of potential transformation without having to leave home.

Mustafa (2020). The emergence of e-learning technology has made the world into a global village and has transformed teaching and learning processes. Technology integration outside the classroom instructions has gained much ground in developed countries.

Hagan (2020). E-learning technology is an innovative way to motivate students to learn without congregation in the classroom, allowing them to partake in their learning experiences perhaps with the aid of zooming, Skype. Streaming and other distant learning devices.

Rajatha, Asha Shetty, B. , Madhura Hegde, N. (2023). UNESCO reports that in April 2020, 185 countries' higher education institutions closed entirely, affecting more than one billion students worldwide. The UN Secretary-General described the threat as a once-in-a-lifetime chance to re-examine the concept of education, implement digital technology-based measures, and roll out new e- learning methodologies.

Robinson, J. (2023). The Covid-19 pandemic raised concerns regarding the adaptableness of the education sector and its ability to provide high-quality distance education. In recent years, the developing countries have emphasized distance education that led to the widespread implementation of e-learning. The use of technologies has enhanced access to quality e-learning opportunities. It provides an overview of successful online learning implementation and development in developing countries by focusing on international adjunct effectiveness. The experiences and perceptions of international adjunct faculty in terms of e-learning will increase knowledge of the present educational progressions for professors,

educators, and university administrators.

Chen, Hao; Hanwen Xuan; Cai, Jinquan; Liu, Meichen; Shi, Lei (2024). The coronavirus disease 2019 (COVID-19) pandemic caused medical schools to rapidly transition to online/distance learning. Online learning is often associated with poor academic performance, mental health, and student-to-faculty relationships. From this study it was found that there may be benefits to the social network developed among students and faculty within the context of the traditional in-person model of medical education, especially when it pertains to academic performance and mental health.

Abdullah, A. Sheik (2021). E-learning explicitly deals with the interaction in an asynchronous mode of learning. The quality of teaching-learning depends on the utilization of digital technologies with the advancement in educational technology.

Abbasi, S., Ayoob, T., Malik, A., Memon, (2024). COVID-19 had repercussions in many fields, including education. Although society worldwide was affected, students and the academic sector were hit hardest. Distance learning was used by almost all governments globally during the pandemic to keep education going when schools were closed. Lockdown, maintaining social distance, online classes, financial insecurity of the parents, etc., have tremendous impacts on students' academic performance and mental health. The primary aim of this article is to review the existing literature to explore how COVID-19 affects students' academic performance and poses a threat to their mental health. We reviewed 88 articles published between 2020 and 2023 and found that students from low-income backgrounds face disproportionate educational barriers.

Converting from face-to-face to online classes was not equally smooth for students from all backgrounds. We also found that various life circumstances negatively affected students' mental health, including concerns about contracting a disease, financial difficulties, isolation from peers, the death of a parent, and the transition to online education.

Moy, F., M (2021). The COVID-19 pandemic has disrupted the lives of all including university students. With the preventive measures to reduce the transmission of COVID-19, all face-to-face teaching and learning are converted to e-learning. The COVID-19 pandemic and the implementation of e-learning may influence these students' mental conditions. Most participants had good perception towards e-learning but negative perception on COVID-19.

Jyothi, Judith, A (2024). Virtual or E-learning is a platform where students can perform a wide range of exercises with a help of a computer-based environment.

Richard and Haya (2009). The internet has become one of the vital ways to make available resources for research and learning for both teachers and students to share and acquire information.

Marzuki, (2021). Distance learning requires the use of telecommunication devices based on information and communication technology.

Alashwal, (2020). In online learning, as in face-to-face learning, it is important for learners to actively participate in the learning processes. In addition, knowing the characteristics of the learner in online learning can contribute to the design of the learning process, creation of content and effective assessment and evaluation.

Groux, (2012). Students who take online courses have the same "income, race, and ethnicity" as their peers in traditional courses. However, more students who take online courses are older than students who take traditional classes, and 60 percent of students who take online courses are women.

Davier, U., Precht (2001), This method of information delivery when compared with the classical teacher-centered approach has proven to be of greater benefit to the student when evaluated using metrics such as learner retention, convenience of learning, attractiveness of the learning package, motivation to learn information storage capabilities, confidence, and interactive engagement just to name a few.

Larmuseau et al., (2019). Virtual activities reduce education cost and provide flexible accessibility to education without being hindered by place and time.

Uppal & Gulliver, (2017). Students want to study, work, and learn whenever and wherever they want. Still, it is believed that E-courses are perceived as lower quality courses due to limited interaction, particularly in presentations, and lack of peer and teacher support.

Martin et al., (2021). Virtual learning system is the structure of teaching through an IT system including computers, laptops, mobile devices, and applications in the same manner as found in normal teaching. It has the features of classroom participation, learning content, test, homework, grading, assessments, and other external resources to content anytime, anywhere, with various devices. There are interactive and collaborative modes of teaching. It is regarded as the management of distance education in a borderless world where there are no restrictions on time, place, or access to equipment.

Al-Obaydi, (2019). Virtual learning is not restricted to share course content and material online, delivering real-time or recorded video lectures, conducting an online assessment (quiz, assignment, case study, project, research, written tests, etc.) but explores immense opportunities to interact with the instructor and within learners through posts, chats/messages, forums, blogs, wikis, reflective journal at individual and group level.

Mojahedzadeh R, (2024). Online interaction is one of the essential elements of distance learning. Being knowledgeable of communication weaknesses in online environments can help educators to develop appropriate materials. In distance teaching teachers should find new ways to communicate with their students and use new communication methods appropriate for synchronous learning environment. However, students' interaction experiences in online environments differ from face-to-face classes. The main feature of online education is the physical distance between the teaching staff, peers, and educational institutions. Therefore, different technological tools should be used to fill this gap to improve interactions.

Liu, Z.Y., Lomovtseva, N. & Korobeynikova, E. (2020). Online learning platforms play an important role in modern education. However, they may not be sufficiently represented in educational institutions. In this regard, the research objectives are set, namely: organize a comparative analysis of several popular distance learning platforms (Moodle, Open edX and NEO LMS) in accordance with the criteria (system features, content support, content creation, user management, reporting system; conduct consultation with university teachers, during which they will highlight the benefits of distance education systems from the point of view of the teacher; and test students, who use the online platform for learning in order to clarify its impact on academic performance.

In this review, a selected number of authors such as (Berrio, N; Mazo, R. 2011, Castaño, E; Gallón, S; Gómez, K; Vásquez, J. (2006), Cabral (2008)) have aimed at determining how distance education has brought with it drastic changes not only for teachers and educational entities but also for students, especially for higher education students who due to social distancing along with academic, work and social pressures come to suffer from psychological and emotional pathologies such as anxiety, stress and depression.

### **Mental Health Definitions**

According to the OMS (1950) “mental health is a state of well-being in which the individual is aware of their own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to their community.”

From this perspective, health as a problem and task goes beyond the strict field of medicine and demands its correct management and attention in a multi-professional and multi-sectorial approach (Tejada D, 1986).

Since ancient Greece, the mind has been called the soul or psyche and was considered separate from the body.

Although many have thought that the mind can influence the body and, in turn, the body can influence the mind, most philosophers looked for the causes of abnormal behavior, summarized as Supernatural, Biological, and Psychological Tradition (Barlow and Durand, 2011).

In general, and according to Oblitas (2004), mental health is “physical and psychological and social well-being, the biomedical scheme, where it compasses the subjective sphere and the behavior of the human being. It is not the absence of alterations and disease, but a concept that implies different degrees of vitality and adaptive functioning”.

Similarly, Dubos (1975), mentioned by Oblitas, states of adaptation to the environment

and ability to function in its best conditions.

According to Guipzcoan Association of Relatives and People with Mental Health problems (AGIFES), which establishes that mental health is the “state of emotional, cognitive and behavioral balance that allows the individual to function responsibility in their family, social and work environment, as well-being and quality of life”.

The online magazine MedicinePlus (2021) “Mental health includes our emotional, psychological and social well-being. It affects the way we think, feel and act when we face life. It also helps determine how we handle stress, relate to others, and make decisions. Mental health is important at all stages of life, from childhood and adolescence to adulthood and old age.”

In psychiatry it is considered that mental health is the state of balance and active and sufficient adaptation that allows the individual to interact with his environment, in a creative way, promoting his growth and individual well-being, and that of his near and far social environment, seeking to improve the living conditions of the population according to their particularities (Vidal, and Alarcon, 1986).

In psychology, when talking about mental health, it is understood as a “relatively enduring state in which the person is well adapted, feels joy for life and is achieving self-realization.” It is a positive state and not the mere absence of mental disorders. It is also considered a normal state of the individual (Davini, Gellon De Salluzi, Rossi, 1968).

## **Methodology**

### **Mixed Research Methodology**

It is a research methodology that consist of collecting, analyzing, and integrating both quantitative and qualitative research. This approach is used when you require a better understanding of the research problem, and you could not give each of these methods separately. Quantitative data include closed-ended information such as that used to measure attitudes, for example, rating scales.

Analysis of this type of data involves statistically analyzing the scores collected, for example through surveys, to answer research questions or test hypotheses.

Qualitative data is open-ended information that the researcher typically collects through interviews, focus groups, and observations. The analysis of qualitative data (words, texts or behaviors) usually consists of separating them into categories to understand the diversity of ideas gathered during data collection.

By conducting mixed research of both quantitative and qualitative data, the researcher gains breadth and depth in understanding and corroboration, while compensating for the inherent weaknesses of using each approach separately.

### **Upper Hand of Mixed Investigation**

By using both types of research, the strengths of each approach can offset the weaknesses of the other.

Provides a more complete and exhaustive understanding of the research problem than doing it separately.

It provides a better approach by developing better and more specific instruments according to the research context.

It helps explain findings or how causal processes work.

### **Disadvantages of Mixed methodology**

Research design can be very complex.

Much more time and resources are required to plan and implement this type of research.

It can be difficult to plan and implement one method using the results of another. It may be unclear how to resolve discrepancies that arise in the interpretation of results.

### **Mixed research is ideal for**

When you want to validate or corroborate the results obtained with other methods. When you need to use one method to inform another. For example, when little is known about a topic, and it is necessary to first know what variables to study through qualitative research and then study those variables with a large sample of individuals using quantitative research.

When you want to continually analyze a research question from different angles and clarify unexpected findings and/or possible contradictions.

When you want to elaborate, clarify, or build on the findings of other methods. For example, if a causal relationship has been established through experimental research, but you want to understand and explain the causal processes involved through qualitative research.

### **Other Definitions of Mixed Methodology**

The mixed approach can be understood as “a process that collects, analyzes and provides quantitative and qualitative data, in the same study” (Tashakkori and Teddlie, 2003, cited in Barrantes, 2014, p.100).

For a long time, quantitative and qualitative approaches were completely contrary and, therefore, could not be used together; However, as Uwe Flick (2012) explains “(...) the combination of both strategies has crystallized as a perspective that is analyzed and practiced in various ways.” (p.277).

### **Mixed Methods Research**

A mixed methods research design is a procedure for collecting, study and analyzing and mixing both qualitative and quantitative research and methods in a singles study to understand a research problem.

In this case, the mixed methodology was used during the development of the research from the review of e-learning and mental health as the main fields to study and their relation with the high education students (individuals) to the statistics found after the analysis of the applied survey to these university students to determine how many of them are suffering or have suffered of anxiety, stress or depression as a result of studying virtually and social isolation and how these situations can be handle by teachers and universities.

### **Questionnaire**

It is defined as a procedure for obtaining and recording data to be analyze and study.

### **Interviews**

According to Tamayo (1994) interviews allow us to obtain information through the direct relationship stablished between the researcher and its object of study to obtain from individuals or groups, real life testimonies.

This research was made through previous studies research and the implementation of a survey to 12 male university students in which they related how virtual education caused anxiety, stress or depression.

### **Methodology to use: Mixed Methodological Approach**

Description of population is made through comparisons along different temporal moments, by using representative samples of participants for each (successive independent samples) or by using the same group along the time (panel design). Vg.: Currie and Thomas (1999).

### **Type of Study**

This is a mixed methodological research based on a survey to analyzed data and obtain the expected results.

Population.

High education students.

Age 21-30

City Medellin, Antioquia

Instrument.

Applied Surveys.

This specific research was chosen because it refers to the influence of virtual education in university students and how it can affect their mental health causing anxiety, stress or depression and how can these disorders could be prevented.

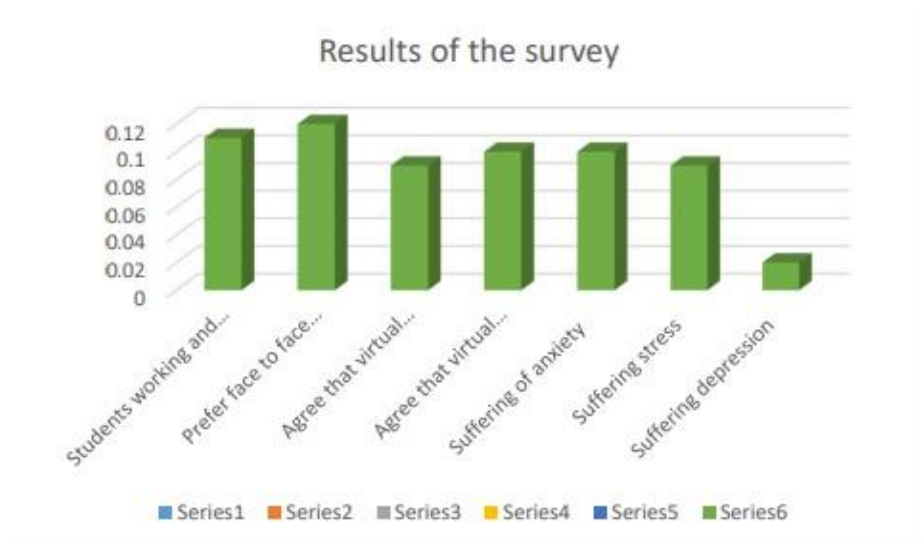
## Results and Discussion

This research was made based on the testimonies of the experience that some university students had with virtual education during their academic process and how it caused in most of them anxiety, stress or depression. The students were selected from universities such as the Luis Amigo University and University of Antioquia.

It was found from the twelve mostly male students who made the survey, 80% of them are working and studying at the same time, 100% of them agree on the preference for face-to-face university classes instead of virtual ones, 60% of them agree that studying virtually generates anxiety, stress and even depression, 70% of them consider that they are suffering from anxiety when studying virtually and 60% of them consider that they are suffering from stress for the same reason, 2% consider themselves to be suffering from depression partly because of virtual study of their careers and partly because of the social isolation that distance higher education entails.

### Figure 1

#### *Mental Health and High Education Survey*



*Fuente.* Elaboracion Propia.

## **Intervention Plan**

### **Phase 1- Identify the Research Problem**

The first ideas for the intervention plan about this research project started around one year and half ago. During this time the survey sample were taken from 12 male university students which are from medium social status and which ages are between in which they bring their testimonies and experiences about studying a university career virtually and how this learning process and academic pressure have been affecting them mentally and emotionally.

In most cases it was identified that the real problem is the psychological, mental, and emotional consequences that studying a career online and other adult life situations after having affronted a pandemic can left in some young students and how universities must pay more attention to these situations in order to bring them the enough support they need.

### **Phase 2- Application Phase**

After analyzing the results from the surveys and testimonies given by these twelve students it was found that most of these students have suffered or are still suffering of anxiety, stress and some of them affirmed that they have been suffering of depression as well. In addition to, it was found that most of them do not go to the psychologist since they confirmed that the psychological programs in their universities such as University of Antioquia and Luis Amigo are not as efficient in bringing the psychological and emotional support they required.

Since I have experienced these consequences of studying a career online while dealing with other adult pressures and situations of day to day life myself, I started to make other research with some friends of mine that are professional psychologists about how these psychological pathologies derived from studying a demanding careers online plus dealing day by day with other adult life situations before, during or after a pandemic they told me that these pressures and the fact that online education has a huge failure and disadvantage in the human

natural face to face interaction with other people can certainly generate stress or anxiety and even depressions that is why is extremely important that these universities most promote develop and create more programs that can provide attention and support to the mental health of their students.

On the other hand, other psychological guidance programs that can be an effective way to support these students that are commonly known by most of medium status employee people are the ones that have been developed by institutions such as Comfama, Confenalco, among others, that have suitable and reasonable tariffs for low and medium social status people like these university students.

### **Phase 3-Evaluation**

Since most of these male students are studying and working at the same time most of them told in the surveys that they do not have enough time to have appointments with professional psychologist and some of them are still in treatment with private entities such as Sentido Group and since as an university student that is dealing with the same problems myself, I realized that its very difficult to support all Medellin city university students that are studying their careers online without the support of the major, the government and even their own universities support in these aspects.

For those reasons, I consider that the best way to support these students and to help them with these mental pathologies and issues is through the diffusion and promotion through social networks, word to word and conferences of ethical and involved mental health care campaigns and programs such as the ones provided by institutions like Comfama, Confenalco and Sentido group as there are multiple testimonies that confirmed that the support provided by these institutions really help them to overcome these situations to continue with their lives in a better way.

The questionnaire instrument contributes and facilitates data collection and analysis when mixed research methods which are defined by Creswell and Plano Clark (2011) as “a research design that has its own philosophical assumptions and methods of inquiry. As a methodology, it includes philosophical assumptions to provide directions for the collection and analysis of data from multiple sources in a single study” and which are being implemented in a research project such as this one, as it was said by Gillham (2000, p. 5) “open questions can lead to a greater level of discovery.”

In addition to, the usage of this important research method has enormous advantages specially when it is applied in research developed through mixed research methods, according to these authors (Seliger & Shohamy 1989; Robinson, 1991; Lynch, 1996; Nunan, 1999; Gillham, 2000; Brown, 2001), these are the main advantages:

They are one of the efficient means of collecting data on a large-scale basis.

They can be sent simultaneously to a great number of people.

The inquirer can easily gather data in field sites.

Respondents’ anonymity makes them to share information more easily.

When similar questions are administered simultaneously to a large number of people the acquired data are more identical, correct and standard.

They are a time-efficient way of collecting data from many people. - Closed-ended questionnaires can easily be analyzed in a straightforward way.

They are cost-efficient. On the other hand, questionnaires have some disadvantages which should be kept in mind whenever and wherever they are used (Gillham, 2000; Brown, 2001).

Sometimes the answers are inaccurate and questionable.

There is usually low return rate when sent by post or email.

Ambiguity and unclearness of some questions might lead to inaccurate and unrelated responses.

Finally, the questions can be administered face-to-face. In this procedure the respondents are relatively compelled to answer the questions. So that the return rate is high, and any ambiguous question can be clarified on the spot by the researcher (Gillham, 2000).

In this research in specific it was observed from a mixed research perspective in the questionnaire instrument that 10 from the 12 university students considered that studying an university career virtually cause anxiety, stress and even depression due to the lack of social interaction, the loneliness, the work stress, the academic stress and other adult life situations.

Finally, through this survey and questionnaire instruments it was possible to analyzed and comprehend the findings shared previously and to conclude that virtual high education has its advantages as a pedagogical, technological, practical manner to teach and learn, although, it is not for everyone, especially for young high education students that work and study at the same time, that have to deal with adult life problems and challenges too and who need to interact directly with their teachers, pairs and friends in other to create other connections and environments of leisure, entertainment and relax that contribute to their mental health and emotional stability.

## **Conclusions and Recommendations**

In conclusion, most of the university or high education students between 21 and 30 that are studying their careers virtually are suffering of anxiety, stress and even depression due to social isolation and the academic pressures. According to previous studies and the obtained results it was realized that this is a daily reality that is affecting many university students from Medellin city, for this reason is very important that parents, teachers and universities try to bring their support to these students in that way through psychological counseling programs that promote the importance of emotional stability and mental health in university life and which provide students tools to deal with academic pressure and prevent disorders such as the ones previously mentioned.

Programs such as “Salud mental 24 horas” offered by University of Antioquia and “escuchaderos” offered by Medellin’s mayoralty are other strategies in which students can have access to psychological assistance provided by professionals in mental health for free that could help them to deal with daily life issues such as academic pressure and prevent these mental illnesses.

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## Appendices

### Appendices A

*The surveys were applied through this form:*

<https://docs.google.com/forms/d/e/1FAIpQLSf7i6Jh4DaMKGS3Apqr-wCSxJ53Agavvv880G3jfyXQEqUPRA/viewform>

## Mental health and high education survey study

The following survey is applied with the aim of identify and understand what are the main mental issues and affections that high education e-learning studies has in twelve university students.

Are you working or studying at the moment? \*

Texto de respuesta corta

Do you prefer face to face instead of virtual education? Why? \*

Texto de respuesta larga

Do you consider that studying a university career virtually can cause anxiety, depression or stress? Why? \*

Texto de respuesta larga

**Appendices A***Mental health and high education survey*

1. Are you working or studying at the moment?
2. Do you prefer face to face instead of virtual education? why?
3. Do you consider that studying a university career virtually can cause anxiety, stress, or depression? why?
4. Are you suffering form anxiety due to work or university?
5. Do you consider that being working and studying the same time can have consequences on your mental health?
6. Are you suffering from stress due to work or university?