



compAs
Grupo de capacitación e investigación pedagógica

Universidad de Guayaquil

A close-up photograph of two hands clasped together, one larger and one smaller, symbolizing support and partnership. The hands are positioned diagonally across the frame, with the larger hand on top and the smaller hand on the bottom. The background is a soft, out-of-focus light brown color.

Education development and its link to community engagement

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Prologue

This work is the result of the hard work of several authors who addressed different topics, with rigorous studies according to their specialties, providing the reader with a global perspective of current issues and of great influence in modern society, such as education, since in the midst of the terrible pandemic that we have been going through since 2020, the learning opportunities that virtuality offered to humanity, through the game, were visualized. This pedagogical strategy generated a leap, an evolution beyond what could be imagined in Latin America. As for higher education, it has also been analyzed from an economic point of view to research and the use of applications in teaching.

Another important topic addressed in this book has to do with the entrepreneurial profile and its importance in the analysis of entrepreneurship from various points of view, such as motivation, responsibility, planning, all of them interrelated for the conceptualization of the entrepreneur and his brand.

In an era of data it is vital that the information is organized and for it also a group of researchers analyzes the importance of the quality of the organization of files, additionally the current influence of the use of free software applications with a case study, which exemplifies its use. Another case considered analyzes the good manufacturing practices in the canton of El Triunfo; both that promotes efficiency in modern management.

Where we are and where we are going, is a topic analyzed from the architectural vision and how man has transformed the environment, its impact in time and space in the development of humanity, also from a vanguard approach is made a study of the linking of society through the development of masculinities, giving this work a holistic and integrative character.

I am pleased to present this work that will enrich the reader through the results of relevant research in the knowledge society, generating through its results, new research interests for the benefit of the authors and their audience.

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The game, a pedagogical strategy during the pandemic. Latin America: Systematic Analysis

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Introduction

The world, as we knew it according to WHO (2020) is no longer the same, this is due to the fact that on January 30, 2020, the epidemic of COVID-19 was declared by WHO as a pandemic, since this infection spread throughout the planet affecting many people, causing death and despair. The simple fact of hearing the word pandemic in some people could provoke fear, which could even lead to death. That is why UNESCO (2021) considers that after more than a year that the pandemic started, which affected almost half of the educational community in the world, it has catastrophic consequences, it is necessary to pay special attention to education in order to mitigate the impact of the closure of many schools, especially in highly vulnerable villages. Boillos (2021) declares that nowadays it is more common to see children manipulating a cell phone with their fingers than to see them splashing in a mud puddle. We know that games and TV programs have their relevance but in excess they can be harmful. Therefore; it can be concluded that children learn when they use their senses and move their bodies.

Based on the aforementioned information, the following problematic is presented: What are the scientific articles that explain the game as a pedagogical strategy during the pandemic in Latin America 2021?

In order to elaborate the present study the following methodology was used: The review of multiple publications of journals with a high degree of indexation such as Scopus, BVS, Scielo, Dialnet, Ebsco among others that were consulted within reliable databases. In addition; a search and study of the bibliographic references was carried out, taking into consideration primary and secondary sources. For the analysis, no language or time restriction was made. Moreover, all articles whose objectives coincided with the game as a pedagogical strategy to promote human values in elementary school students during the pandemic in Latin America were included. Likewise, all articles that had no relationship with the study variants were excluded. An independent evaluator was in charge of the study selection and differences were resolved by a second evaluator.

According to UNESCO (2021b), within the social activities of people, games are of great importance because through them we interact and learn. The growing advance in terms of technology has brought about changes in the games we knew. The current reality is that many young people have changed traditional games for digital games. Based on this premise, we can use communication devices as an improved strategy not only for creating in students the development of critical and reflective skills, but also for increasing meaningful learning through games.

Regarding the previous epigraph, UNICEF (2018) expresses that its report should be the cornerstone on which the pedagogy of students' education needs to be built. Any training action planning or teacher training should be done using games that would serve as a basis for the proper development and success of the institution. It is necessary to consider that families play an important role in the education of students, since this is the way to guarantee

their development and learning through games that will keep them connected in different areas of life.

On the same line, ECLAC-UNESCO (2020) consider that in the design and implementation of responses to the health crisis in the educational field, the active participation of the educational community is necessary, whether during the confinement or when the educational institutions reopened, for this it is also necessary that the pedagogical responses must be creative in order to address the continuity of learning.

For MINEDU.CO (2020) there are certain situations that do not change and one of them is the pleasure of playing, at this point parents, students and teachers meet to create new extraordinary learning that respond to the educational challenges of the XXI century but taking into account each of its concepts in order to use the game as a pedagogical strategy during the isolation by the pandemic.

For the above mentioned Rodriguez (2020) considers that a teacher committed to his students is the one who transfers the game to his classrooms, foreseeing an integral development in his students, thus helping their personal growth and confidence. This teacher's attitude leads his students to be self-confident and to trust on their abilities once they are in the game, this significant contribution represents the characteristics of a good educator.

For Sánchez-Domínguez, Castillo Ortega, and Hernández López (2020), according to the reality, the game is not negotiable in its conception since it represents teaching methods, in fact, this pedagogical activity with daily practice is subject to its flexibility within the curricular planning, in such a way that possible setbacks in the students can be reduced.

According to the analysis of Giraldo (2017) within the school work the game is shown in different actions that are absolutely related to education either inside or outside of the classroom, respecting the abilities of students who are very encouraged in their learning. Each student as a dynamic being and willing to explore new adventures in the field of learning is benefited by the teacher's attitudes when they implement in their classes the game as an alternative pedagogical strategy.

Continuing with the same topic Ruíz M: Espinoza D: Díaz G (2019) state that for education to be effective, games should be implemented as a strategy and a good didactic resource, which will serve as a motivation to actively participate in the construction of their knowledge. It is clearly note in this section the importance of the implementation of the game as a tool not only for learning but also for social integration.

The present study holds a qualitative approach, Significados (2019) says that this type of study is also known as qualitative methodology where it is proposed to evaluate and interpret information either from records, interviews, memories in order to collect the essential of its meaning.

Guerrero (2016) expresses that each of the processes shown in this type of study are established according to the moment, but we must know what objectives are necessary to achieve.

The exploratory studies according to Vasquez (2005) express that in order to carry out a research the scientific content must have clarity in its previous development supported by other researchers and thus be able to synthesize new ideas from their experiences.

Within the compilation of all the information for this study, the technique used was the elaboration of a registry, organization and

records chart where it was possible to order data based on all the topics consulted. On the other hand, the primary sources used were: scientific articles, indexed magazines which provided reliable information. Likewise, in order to find these primary documents, it was also necessary to rely on secondary sources such as: bibliographic summaries, journals or bulletins, web pages, databases, among others, assuming for this reason to observe a documentary review with a detailed analysis for that collection, which was done without numerical measurements, in other words, without statistical analysis. With all this, it was intended to relate, refine and give answers to the research question within the process of interpretation of the results, added to that the study allowed to configure a document with innovations and valuable knowledge and supported in a theoretical way that gave the possibility to analyze, criticize, compare and explain the intellectual interests, topics, authors with the resource of the information sources.

The present study is of a qualitative nature, based on the compilation of reliable documents on its conclusions, recommendations, scope and limitations, of some perspectives on theories and with the design of an organizing and compiling table of information from primary sources: books, articles, indexed magazines, etc. Secondary sources: newsletters, web pages, databases, libraries, etc.

Therefore, this study constitutes a compilation of different studies and once all the guidelines were clarified, the theoretical bases were prepared in relation to the research topic in all the sources mentioned above, which were of great contribution to the development of the study.

The structure of the article shows the following: topics researched and related to the game will be addressed, a pedagogical strategy

during the pandemic in América-latina 2021. MINEDU (2021) the experiences originated at home, there is no doubt the recreational activities, the games, that shared experience and its relationship with the school promotes new learning.

According to Sandín (2003) cited by Lño (2018) the qualitative approach of this article seeks in a deep way the understanding of social and educational phenomena with transformation in social scenarios making good decisions focused to the discovery and development of new knowledge, under a documentary technique.

Eligibility criteria: The systematic review conducted covered a large number of articles about the game, a pedagogical strategy during the pandemic in Latin America 2021, its scope is developed within the doctoral program of the Universidad César Vallejo, Latin American teachers were included as participants.

Type of studies: The studies that served as reference for this work were considered without discrimination both qualitative and quantitative and were about the game a pedagogical strategy during the pandemic in Latin America 2021 considered eligibility criteria, taking into consideration the limited number of publications on the game as a pedagogical strategy, the main objective of the review focused on mapping on what is already known and recognize some designs of publications according to the evidence.

For the positive effects of this study, we found different results associated with the benefits of including games in pedagogical practices to favor learning from the first years of life of boys and girls. The search for the review of articles was carried out using the title of this study in the following databases: Scopus, Scielo, Redalyc, Ebsco Discovery, Dialnet, BVS, Embase (Elsevier).

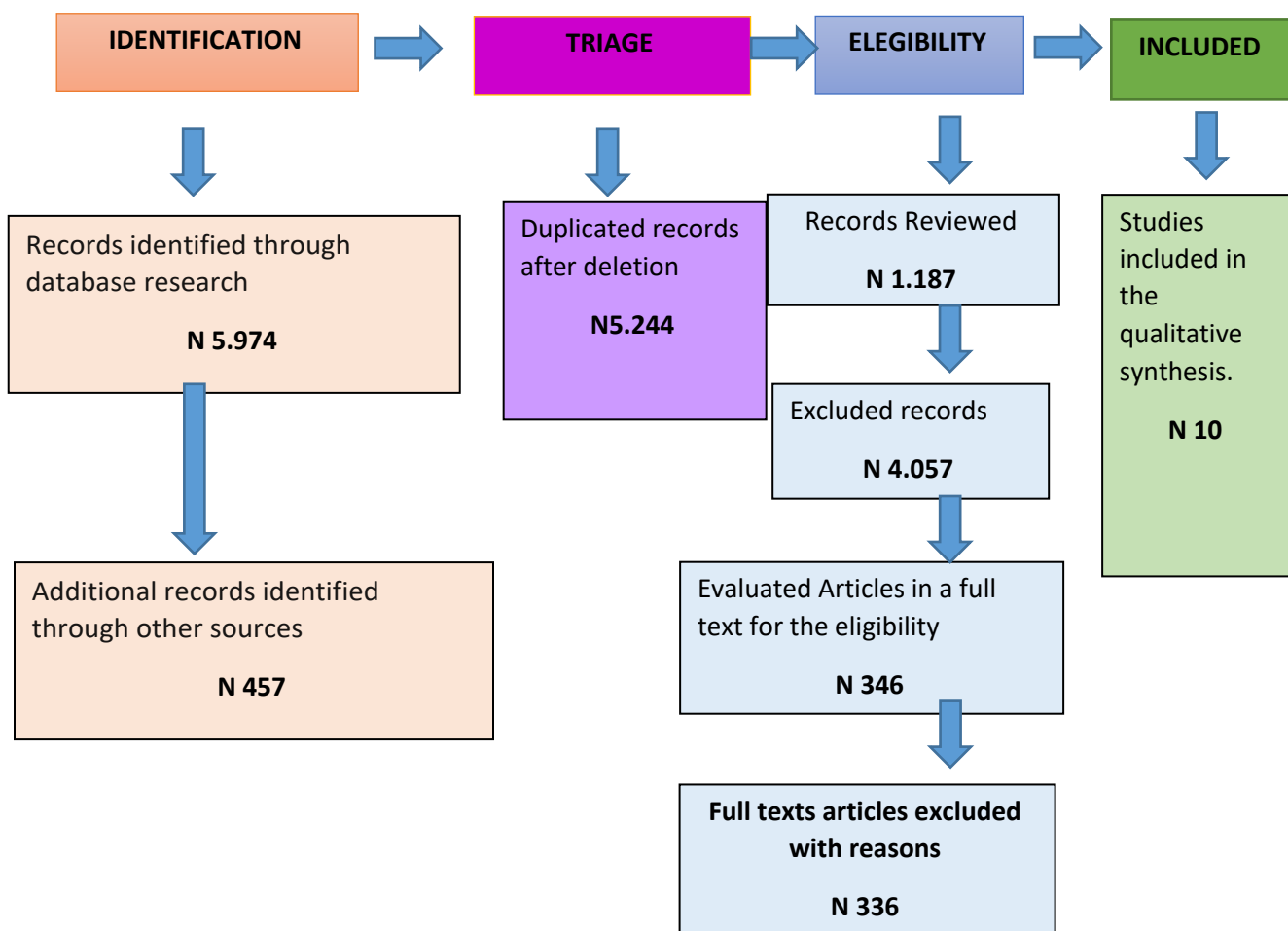
Similarly, the search using primary and secondary references was performed manually in the aforementioned databases and the search was carried out until August 5, 2021. The following strategy was used to select the articles: A review of titles and abstracts found from which studies with a high degree of eligibility were selected and the complete review of the chosen text and thus confirm that it was eligible. The Rayyan platform (https://rayyan.ai/users/sign_in) was used for this selective process. This selective process was carried out by 2 independent reviewers and doubts were resolved by a third reviewer.

At the end of the selection process, no randomized studies were found that included the game, a pedagogical strategy during the pandemic in Latin America 2021; therefore, research articles containing coincidence with the study variables were included in a review process in publications up to the year 2021.

The strategy used for the search revealed 6431 productions of references, and in the selection process 1187 duplicate references (same references) were examined and another 5244 references that did not match what was needed within the inclusion criteria were discarded when their title was reviewed, subsequently 346 references were read and another 336 were discarded to confirm eligibility within the search criteria and which is shown in a flow chart. Once the selection process was completed, ten studies were included and are presented below in a descriptive manner since, due to their nature, a different analysis cannot be performed.

The game, a pedagogical strategy during the pandemic in Latin America 2021

Graph 1. Diagram



Analysis of the reviewed studies

The study done by Guzman, Del Moral, Fernandez (2016) concludes that differences were observed depending on the gender of the intelligences, students improve in the naturalistic by showing a taste for rhymes, tongue twisters, in the logical-mathematical as a taste for games that require using strategies and in the naturalistic, in the indicator taste for simulation and virtual manipulation of innovative materials of video games.

It can be clearly seen that children present different learning environments depending on the skills developed in terms of language, reasoning, and the manipulation of objects in a virtual way, especially through video games; this provides knowledge of the value of games in students' learning. Likewise, Carranza et al. (2019) declares that in their study it was possible to observe that students, teachers and principals are strongly associated with learning as a set of knowledge written in a game plan. However, this planning turns out to be in some cases linear, out of context and generally evaluated in an unrealistic way. The authors observe that knowledge is associated with games, which can be evidenced in their academic planning, but without a significant value that influences student performance on the part of principals, teachers or even the students themselves. In this sense, Costa-Rodriguez, Palma-Leal, and Farías (2021) conclude that it is the responsibility of teachers and, why not, of the educational institution, to create favorable environments of stimulation through games for students in the reinforcement of their self-esteem and integral development, which, as is known, learning occurs efficiently when students feel respected and treated with affection. The article provokes reflection about the environments that favor learning in students in a comprehensive manner since it is noted that students learn more and better when they play and recognize that they are in a place

where respect and good treatment prevail. According to Forero E. (2018) the main beneficiaries of this process were the students who presented low academic performance, the use of the game as a pedagogical strategy was effective, all of this was observed because of teacher with an outstanding opinion and it was maintained until the end of the school year. The study makes evident the contribution of the game as a methodological strategy to strengthen the learning of students and especially those who have a low performance in their academic activities. Gil Quintana (2019) states that children currently face unprecedented challenges where there is no doubt that education responds according to the playful activities implemented. Criticizing this study, we should be concerned about incorporating mobile learning in classrooms and applying active game methodologies whose paradigm is a participatory pedagogy with effective and horizontal communication that serves to promote game literacy. The use of the game as a pedagogical tool for the academic strengthening of students is fundamental within the teaching practices in this particular case in the use of mobile devices, which as it is well known, they bring varieties of games from which the teacher can take advantage and incorporate them effectively in their planned activities for the class. On the same line, the authors Córdoba et al. (2017) on the alleged discouraging answers oriented to embody this legal truth, it can be understood that the game could be considered as a resource that proposes a space for educational institutions in which these indicated goals can be approached, and can contribute to the practice of this substantial world program as it allows the entry of necessary facets of the human being and that seem to be excluded such as intersubjectivity, ego, equity, humility, creativity or self-knowledge among others. The article makes it clear that the use of games as a pedagogical tool within academic activities would help to achieve objectives more efficiently in

relation to the performance of students in their cognitive development. For Sánchez-Domínguez et al. (2020) those teachers who did not appreciate the value to the game as a fundamental tool in the production of psychological signs that provide children with the control and development of their social, cognitive and affective capacities, wasted every opportunity that arises from it, it cannot be denied that the game represents a teaching method thanks to its flexibility within the working plans. The study researched in relation to the game as a pedagogical tool within the significant learning that students can develop, it was found that those teachers who do not consider this proposal miss the opportunity to strengthen their teaching work, on the contrary, those who do consider the game get the benefits and achievements that it brings to their academic work. Rodríguez Malebrán et al. (2020) in their study, concludes that this synthesis allows authorizing the video game to be used as a didactic process in the thematic axis "Life Sciences: vigor and ecosystem" provided in 4th and 6th fundamental year, whose indefinite collaboration are students between 8 and 11 years old. On the other hand, the video game creates opportunities for the process of their scientific skills, since the practice allows interacting with the variables of scientific knowledge, a perspective that cannot be experienced in this way in primary education. This article allows us to analyze the use of video games within the teaching practices, where teachers can implement this type of game with their students and develop new knowledge that will favor scientific skills starting from the primary education. Meñaca G and Cortés O (2016) conclude that as it was analyzed, the game has a special relevance in the life of human beings to the extent that it helps to form people's identity, personality and to strengthen social relationships accepted and conventionalized by culture. By playing people are not only "fulfilling" the theories that try to explain why people play, but regardless of what they say, other branches of knowledge such

as pedagogy, didactics, learning, virtual environments show us that definitely, the game both in traditional classroom spaces and in the field of virtuality, is a key element in human formation for his educational, didactic, strategic and expressive sense. Clearly, the article shows that the game applied as a pedagogical tool within the teaching and learning plans favors the knowledge of those students who play, and this would be completed if it were also used within virtual teaching environments. Finally Cortés A and Garcia G (2017) conclude that in this order of ideas, education is facing a great challenge, consisting of an educational revolution aimed at creating new pedagogical models that support a developmental teaching model, where the game is included, aimed at fostering the creative capacity of students at all levels, from preschool to higher education. The game within the academic activities is presented as a great teaching challenge which is aimed at the development of different cognitive abilities from the preschool stage to the highest educational level.

Table 1: *Description of the included studies*

Article	Method	Result	Conclusion
Project game to learn: Learning based on games in order to increase the logical-mathematical, the naturalistic, and the linguistic	The impact of the game to learn Project has been evaluated. This project was implemented in 12 classrooms of Valencia schools (Spain)	Once the descriptive statistics, bivariate correlations and ANOVA were applied, the results showed a significant	In conclusion, differences were observed according to the gender of the intelligences, students improved in the naturalistic by showing

intelligences in primary education. with primary students (N= 119), focused on increasing the logical-mathematical, the naturalistic, and the linguistic intelligences using a methodology based on games, through games and digital educative games. In that context, the teachers reported the level of each student's intelligence, before and after the study, using a qualitative instrument of 30 indicators. increase in the three intelligences presented by the individuals at the end of the study. preferences for rhymes, tongue twisters, etc. ($p < .014$), in the logical-mathematical they showed preferences for games that required using strategies ($p < .049$) and in the naturalistic one, students preferred simulation and virtual manipulation of innovative video games materials ($p < .050$).

<p>Back to the comfort zone in interdisciplinary projects? Experience in a secondary school in southern Argentina</p>	<p>A qualitative, exploratory, quasi-experimental, longitudinal, research was developed, taking as a sample an agro-technical study center, whose technique used was the content analysis of audios recorded in parallel sessions of students, teachers and directors with the researchers to decide the continuity of the research.</p>	<p>Strong ideas were highlighted, which were generated from the personnel involved in the shared work with those in charge of the research, who recorded each of the sessions in audios that were later analyzed. Then, in certain destabilizing elements were recognized and finally, enabling advice for the learning process was provided through the experiences reported.</p>	<p>It was observed that students, teachers and principals are strongly associated with learning as a set of knowledge and skills written in a plan. In some cases, this planning turns out to be linear, out of context and generally evaluated in an unrealistic way.</p>
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<p>Emotionally intelligent teachers. The</p>	<p>The study was carried out based on a</p>	<p>This research allowed to know that</p>	<p>It is the responsibility of teachers, and</p>
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importance of Emotional Intelligence for the application of Emotional Education in classroom pedagogical practice.

review of various bibliographies of a descriptive approach, documentary process, selected articles from indexed journals related to the subject under study.

educating the emotions in function to the human being is of great importance, since this could change people's decisions in a positive way. Therefore, it is highlighted that in the first 20 years of life a great part of people get develop in the schools and it is logical that not only the family but also the teachers are the ones in charge of educating in the beginning the self-knowledge and management of emotions, a situation that should not be

why not the educational institution, to create favorable environments to stimulate students in order to reinforce their self-esteem and integral development. As we know, learning is efficient when students feel respected and treated with affection.

delegated to the criterion or initiative of the teachers.

Corporal Literacy

Having as a starting point a context analysis, it was assumed that the research was of inductive method, reasoning the context problem planning the approach strategy from early childhood from the educational field. Then it was determined that the main methodology would be action research. Likewise, a qualitative analysis was

The competencies in the classroom were strengthened by the educational processes aimed at facilitating motor maturation within the educational curriculum. All this thanks to the implementation of the game as a didactic alternative for teaching.

The great beneficiaries of this process were the students with low academic performance, since the progress was very significant, all of this could be observed by the teacher, who had an outstanding opinion and was maintained until the end of the school year.

done to 26 field studies of the dance activities previously suggested on the corporal alphabet, eight interviews to the representatives and one interview to the teacher, with the purpose of finding out more about their perceptions regarding the social practice within the classrooms.

<p>Interconnected focused on the collective construction of knowledge. Mobile learning in Early Childhood and</p>	<p>This study is presented under an emerging action-research design, because in context it is not very convenient</p>	<p>Collaborative learning has main characteristics that are based on interaction, since the exchange of ideas is learned</p>	<p>Currently, children face unique challenges where there is no doubt that education responds. Criticizing this</p>
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**Primary
Education**

to create a methodological scheme that points out the line that is required to analyze and synthesize the data. In contrast, differences in the criteria were proposed in order to advance the creation of a research context that is open and processual, so that the data obtained can be chained and improve the methodological level and greater efficiency in the interpretation of each data analyzed.

synchronously as the game develops with the interaction and asynchronously in a space of individual reflection and meeting which is then shared with others, understanding that collaborative learning is a social process where knowledge is built collectively.

study, we should be concerned about incorporating mobile learning in the classroom and applying active methodologies where the paradigm should have as a basis a participatory pedagogy with an effective and horizontal communication, which serves to promote the multiplying literacy of the game.

The game as a ludic strategy for the inclusive education of well-being.

Ecuador demands the discussion of the implementation of the sumak kawsay educational political project that demands resources and proposals that can contribute to its development. Here we propose the game as a possible didactic resource to offer inclusive spaces in the phases of the individual established as a well-being as stated in the constitution, in the rights to education, awareness,

As a commitment of teachers we have to take care of the integrity of their students and each of the members of the educational community as established by the (LOEI, 2011, Art. 11), since every person is worth a lot and is unique and valued in their reality, whether physical, psychological or human. The characteristic of an inclusive teacher is reflected in the dialogic praxis that is based on the feel through questions,

On the same line, on the supposed discouragement of answers oriented to shape this legal truth, we understand that the game could be considered as a resource that proposes a space for the educational institutions in which these goals can be approached, and can contribute to the practice of this substantial program of the world because it allows the entry of necessary facets of the human being that seem to be excluded, such as

Interculturality added to the intersubjectivity, and humility awareness and ego, equity, based on self-respect giving humility, criticism. Here value to creativity or self- it is a reflection diversity, knowledge, and proposal to approaching among others. use the game through the as a strategy to game to each strengthen of the realities inclusive of the human practices. being knowing that through the game is learned and taught.

The game as a sign representation in preschool children: a sociocultural approach. Based on the information above, the aim of the study is to describe children's play as a way for expressing signs in a sample of 45 preschool children. The qualitative approach was adopted to split from the Once we observed the time that each teacher dedicated to the game within their class, which were evidenced in three moments of the day for a period of 90 minutes for each group. It is then where it was found Those teachers who did not give any value to the game as a fundamental tool in the production of psychological signs that offer children the control and development of their social, cognitive and affective capacities waste

exploration modality and interpretative character. Observations were also made to the children inside the classroom, these were recorded in a field chart, and likewise, semi-structured interviews were applied to the head teachers and the administrator of the institution. The results were processed by means of content exploration.

that despite every opportunity that the game offered, it cannot be denied that the game represents a teaching method thanks to its flexibility within the work plans.

that the game was part of the curricular program, the teachers did not apply it within their references or didactic planning in relation to other subjects.

Evaluation of the educational video game "Aphids Attack" through log-

This study is framed as a real descriptive research for the assessment of a didactic change

The first graders' responses focused on the gameplay and enjoyment of

This synthesis allows to make possible the use of video game as a didactic process in the

linear models for the teaching of ecological interactions at primary level. (Arias, 2012). Data were collected in a single moment and in a single time, in order to identify strengths and aspects to improve the video game for mobile devices "Aphids Attack". The participants to be evaluated were students and teachers who teach basic or primary natural sciences in five public schools, of which three belong to the Maule region and two correspond to the Coquimbo area. The criterion for their selection the video game. One of them was to circumscribe the influx of obstacles and target other characters to advance through the levels. On the contrary, the teachers focused their opinions on the didactic materials and pedagogical concept to be attributed to the video game. thematic axis "Life Sciences: vigor and ecosystem" provided in 4th and 6th year, whose undefined collaboration are students between 8 and 11 years old. On the other hand, the video game creates opportunities for the process of their scientific skills, since the practice allows interacting with the variables of scientific knowledge, a perspective that cannot be experienced in this way in primary education.

was based on the participants constituting the equal grant that could offer this video game.

The game: a strategy for teaching-learning in virtual environments for non-commissioned officers at the marine infantry training school in Coveñas, Sucre, Colombia.

The technique used to collect the information for this research was the design of worksheets, which allowed the process of recording, organizing and compiling the information. The worksheets were organized according to the topics, chapters, books, articles, research projects and authors used. Among the primary sources of information used are:

In short: video games, beyond their recreational value, become instruments that communicate things to us about the world, about cultures, political, economic, social, religious and survival activities of nations, their development, but they are also key elements for human formation due to their

As it was analyzed, the game acquires special relevance in the life of human beings to the extent that it helps to form identity, personality and to strengthen the social bonds accepted and conventionalized by culture. By playing we are not only "fulfilling" the theories that try to explain why we play, but regardless of what they say, other knowledge

books, scientific articles, indexed journals, theses, monographs and research projects, which will provide us with reliable and first-hand information. On the other hand, in order to find our documents, secondary sources were used such as: bulletins or journals of bibliographic abstracts, catalogs that include bibliographic descriptions, the Internet, websites, databases, the newspaper library, etc.

educational, didactic and strategic sense.

such as pedagogy, didactics, learning, virtual environments show us that the game, both in traditional classroom spaces and in the virtual environment, is definitely a key element in human formation due to its educational, didactic, strategic and expressive sense.

Pedagogical strategies that favor the learning of children from 0 to 6 years of age in Villavicencio, Colombia.

This article will allow us to obtain a bibliographic compilation which objective is to know and identify the different pedagogical tools and strategies that teachers can implement in the classroom; detailing what each one consists of and what transcendence it has for the child in his or her integral development.

It is found that there is a variety of strategies implemented by teachers in educational institutions; however, there is no research that produces and integrates the different pedagogical tools that guide educational agents, to favor the learning process in children from 0 to 6 years of age, as is the case in the city of Villavicencio, where it can be established that there is no research that proposes such tools.

In this order of ideas, education is facing a great challenge, entailing of an educational revolution aimed at creating new pedagogical models that support developmental teaching, oriented to foster the creative capacity of students at all levels, from preschool to higher education.

As it has been analyzed during the reviews presented in this study, the game plays an important role on the development of skills not only physical or motor but also contributes considerably to the integral formation of students from their first school cycles to the highest educational levels, providing as a result children with problem-solving abilities, with personality and independence with clear signs of reaching personal goals due to their high self-esteem. It is the responsibility of teachers to implement into their curricular planning playful practices, so that each child can develop the aforementioned skills using games.

References

- Boillos, Fernando. 2021. «Redescubrir el juego y el espacio lúdico en casa en tiempos de». 1-16.
- Carranza, Pablo Fabián, Natalia Fátima Sgreccia, María De la Trinidad Quijano, Martín Goin, y Mabel Susana Chrestia. 2019. «¿Retorno a la zona de confort en proyectos interdisciplinarios? Experiencia en una escuela secundaria del sur de Argentina». *Revista Educación* 43(2):28. doi: 10.15517/revedu.v43i2.30512.
- CEPAL-UNESCO. 2020. «La educación en tiempos de la pandemia COVID-19». *Comisión Económica para América Latina y el Caribe, Santiago Oficina Regional de Educación para América Latina y el Caribe de la Organización de las Naciones Unidas para la Educación la Ciencia y la Cultura* 11:11-13.
- Córdoba, E., F. Lara, & y A. García. 2017. «El juego como estrategia lúdica para la educación inclusiva del buen vivir.» *Ensayos - Revista de la Facultad de Educación de Albacete* 32(1):81-92.

- Cortés, Alexandra; y Giovanna Garcia. 2017. «Estrategias pedagógicas que favorecen el aprendizaje de niñas y niños de 0 a 6 años de edad en Villavicencio- Colombia». *Revista Interamericana de Investigación, Educación y Pedagogía, RIIEP* 10(1):125-43. doi: 10.15332/s1657-107x.2017.0001.06.
- Costa-Rodriguez, Claudia, Ximena Palma-Leal, y Carla Salgado Farías. 2021. «Docentes emocionalmente inteligentes. Importancia de la Inteligencia Emocional para la aplicación de la Educación Emocional en la práctica pedagógica de aula». *Estudios Pedagogicos* 47(1):219-33. doi: 10.4067/S0718-07052021000100219.
- Forero, Elizabeth Casallas. 2018. «Alfabetización Corporal .» 23-34.
- Gil Quintana, Javier. 2019. «Interconectados apostando por la construcción colectiva del conocimiento. Aprendizaje móvil en Educación Infantil y Primaria». *Pixel-Bit, Revista de Medios y Educación* (54):185-203. doi: 10.12795/pixelbit.2019.i54.10.
- Giraldo, Andrés. 2017. «Maestros sin miedo a jugar». 1-12.
- Guerrero, María. 2016. «La investigación cualitativa Qualitative research». *INNOVA Research Journal* 1(2):1-9.
- Guzman A, Del Moral E, Fernandez L. 2016. «Strengthen Logical-Mathematical, Naturalist and Linguistic Intelligences in Primary School». 177-93.
- Iño, Weimar. 2018. «Investigación educativa desde un enfoque cualitativo: La historia oral como método». *Voces de la educación* 3(6):93-110.
- Meñaca G, Indira, y Freddy Anderson Cortés O. 2016. «El Juego:

Una Estrategia Para La Enseñanza-Aprendizaje En Ambientes Virtuales De Los Suboficiales De La Escuela De Formación De Infantería De Marina De Coveñas Sucre-Colombia.» *Revista Palobra*, «palabra que obra» (16):240-59. doi: 10.32997/2346-2884-vol.16-num.16/2016/52.

MINEDU.CO. 2020. «El juego como herramienta pedagógica en tiempos de cuarentena». 1-98. Recuperado (<https://contactomaestro.colombiaaprende.edu.co/node/264>)

MINEDU. 2021. «Contención Emocional». Pirmera:1-52.

OMS. 2020. «La OMS caracteriza a COVID-19 como una pandemia». *Organización Panamericana de la Salud* 1-5.

Rodríguez, Eliana M. 2020. «El Juego: un instrumento privilegiado de enseñanza». 2017(1):1-9.

Rodríguez Malebrán, Mariano Eliseo, Miguel Angel Manzanilla Castellanos, Eloy Antonio Peña Angulo, Maricel Occelli, y Claudio Ramírez Rivera. 2020. «Evaluación del videojuego educativo "Aphids Attack" a través de modelos log-lineales para la enseñanza de las interacciones ecológicas en el nivel primario». *Pixel-Bit, Revista de Medios y Educación* (59):201-24. doi: 10.12795/pixelbit.77888.

Ruíz M: Espinoza D: Díaz G. 2019. «El juego como estrategia didáctica para favorecer el aprendizaje de los niños en el nivel I del Centro de desarrollo Integral la Gran Comisión ubicado en la villa Bosco Monje en la ciudad de Masaya durante los meses Febrero – Abril del año 2019». *Articulo* 1(1):41-57.

Sánchez-Domínguez, Juan Pablo, Sara Esther Castillo Ortega, y

Betzaida Marimel Hernández López. 2020. «El juego como representación del signo en niños y niñas preescolares: un enfoque sociocultural». *Revista Educación* 44(2). doi: 10.15517/revedu.v44i2.40567.

Significados. 2019. «Significado de Investigación cualitativa Qué es Investigación cualitativa »: 7-9.

UNESCO. 2021a. «Interrupción y respuesta educativa». *Unesco* 2021:0.

UNESCO. 2021b. «Viajar por el mundo de los juegos con conocimientos sobre los medios de comunicación y la información». 1-9.

UNICEF. 2018. «Aprendizaje a través del juego». *La fundación Lego - Unicef* 1-36.

Vasquez, Isabel. 2005. «TIPOS DE ESTUDIO exploratorio». 1-41.

Entrepreneur profile. A confirmatory factor analysis of Entrepreneurial

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Introduction

According to the United Nations Development Program (UNDP) and the International Labor Organization (ILO) (2016), Latin American society has been showing a marked process of transformation at various levels and estates, which include social, cultural, and economic dimensions. However, challenges persist regarding the still growing vulnerabilities, which become critical, with the exceptional situation left by the passage of Covid-19.

The crisis unleashed by Covid-19 continues to impact the economies of different countries in the region, as well as the rest of the world. According to ECLAC and IMF data taken from the ILO (2020), an economic contraction of -9.1% and -9.4%, respectively, was recorded, which caused a global unemployment rate of 13% in the region, reaching more than 41 million people. This is where the figure of entrepreneurship appears as a possible solution for such different societies.

There is no doubt that entrepreneurship is one of the main generators of growth and employment in the country. Serida, Alzamora, Guerrero, Borda & Morales (2020) refer that Peru is one of the countries that has a high percentage (39.7%) of youth entrepreneurship, which places it eighth worldwide, and fourth in the region, regarding how big is the intention to be an entrepreneur.

According to Linares (2002) cited by Medina et al. (2017), from the business perspective, entrepreneurship is configured in those business determinations that are born from the imagination and free and instinctive creation of any person, seeking and taking advantage of opportunities that are built, since they have as their goal the feeling of personal fulfillment and generating both employment and income. On the other hand, Sepúlveda et al. (2017) citing Salinas and Osorio (2012), define entrepreneurship as the ability displayed by an individual to identify a set of opportunities in their framework of action, seeking to achieve personal benefit and impact on society, which implies facing heavy financial risks.

In this context, what role do universities play? According to Gómez and Ríos (2012), universities are the entities responsible for contributing to the solution of the problems of the region and

country. Therefore, they must seek to educate each of their students with an entrepreneurial profile and attitude. Deza-Loyaga et al., (2021) indicate that good business teaching practices take a leading role in the development of entrepreneurial attitudes, skills and competencies, even encouraging entrepreneurship as a clear option for future development.

According to Pedraza, Ortiz and Barrios (2015), defining the profile of an entrepreneur implies, at first, the analysis of personal factors that define whether there is potential; in this set of factors, we can mention propensity for risk, self-efficacy, locus of control and innovative character. The second set of factors is the environment, highlighting the family and the educational level that ultimately impact the psychology of the entrepreneur. Under another perspective, the profile of the entrepreneur integrates a broad set of elements, among which competencies and values are identified, converging with some attitudes, which, when analyzed, the research collected by Ibañez (2002) and Krauss (2007), cited by Alda (2010), converge with each other. The components of said profile would be: effort, innovation, planning and vision of the future, self-esteem, achievement-based motivation, responsibility, self-knowledge, and risk; a scheme developed by Alda (2010) based on the adaptation carried out by Ibañez (2002) of the Entrepreneurial Attitude Orientation Scale (EAO) model and developed by Robinson in 1987.

For all of the above, it is necessary to have robust instruments to measure the dimensions or constructs associated with this reality of entrepreneurship, which integrate components from various areas and are applicable to the particular university context. The objective of this study is to validate, through confirmatory factor analysis, a measurement model for the profile of the entrepreneur, which from

the constructs proposed in the EAO, can be verified in this context of university entrepreneurship.

EAO model composition

Effort and perseverance

Fernández-Martín, Arco-Tirado & Soriano-Ruiz (2018) citing Almlund et al. (2011) indicate that perseverance is a personal characteristic that stimulates or encourages the person to work hard, take on challenges, and conserve effort or interest over time despite the occurrence of adverse events or failures. Ladu (2017) defines perseverance as the condition that implies the maintenance of the originally outlined guidelines, despite the different obstacles and possible failures that are revealed.

Innovation

According to Martínez & Dutrénit (2019), innovation, from the Schumpeterian economic notion, implies a new way of doing things; the generators of the same and companies who are seeking to satisfy the needs demanded by the market, also want to obtain a profitable gain and better position themselves in the market. Alvord et al. (2004) cited by Martínez and Deutrénit (2019) refer that entrepreneurship, in order to be socially successful, will use innovations that not only seek the delivery of resources and services, but also the provision of innovation-generating assets. Vernaza, Medina and Chamorro (2020) indicate that innovation refers to the production of things that take different forms than the existing ones or that may well be the same, but adopting a different production method.

Planning and vision of the future

Falcón (2015) indicates that planning is a substantial process that puts both the organizations, and the people who exercise their leadership, in a context such that they have to act in a dynamic, demanding and infinitely changing environment. Strategic planning will then be the tool that guides the way and adapts the management style to said environment, while creating value and designing a course for achieving an advantageous position through the development of competitive advantages. Burdiles, Castro and Simian (2019), mention that successful strategic planning implies processing information suitably for decision making.

Self esteem

In simple terms, Chen, Ding and Li (2016), referring to Baumeister (1993) and Rosenberg (1979), indicate that self-esteem refers to the evaluation that each individual has of himself. Ucbasaran, Westhead, Wright and Flores (2010) citing the ideas of Koellinger et al. (2007) and Hayward et al. (2006), highlight the following: an excess of optimism or confidence when carrying out a venture can generate poor decision-making, as well as the formation of companies unable to pay their expenses to operate.

Achievement motivation

Granero-Gallegos and Baena-Extremera (2014), cited by Martín-Moya, Ruiz-Montero, Capella-Peris, Chiva-Bartoll (2018), consider that motivation is an important aspect that must be developed in people, since its presence in an individual will allow those individuals to persist in the achievement of a certain objective, which can be also be translated as greater dedication or interest in an activity.

According to Wigfield & Cambria (2010), motivation stimulates and directs the actions of individuals, which is why it is of vital importance for their development in different aspects of their lives, such as the start of a business.

Responsibility

Cuadra et al. (2015) cited by Morales, Guzmán y Baeza (2019) responsibility is a value that encourages the fulfillment of the tasks set by an individual, so it directly favors persisting when carrying out activities aimed at fulfilling an objective. According to Ciavarella et al. (2004) cited by Hwee Nga & Shamuganathan (2010) a strong sense of responsibility is capable of fostering dedication and meticulousness in individuals, which can be understood as a feeling or willingness to constantly improve in the activities of their interest.

Self-knowledge

Lazos (2008) cited by Prieto (2018) points out that self-knowledge is the understanding of facts about oneself, from both a mental and psychological perspective, which leads to an immediate response. According to Goleman (1999) cited by Casado & Casaú (2019), it is the discernment of internal stages, attitudes, particularities, possibilities, skills, and sagacity, which, accompanied by motivating skills plus initiative, achieve a business project.

Risk

The entrepreneur is an active person, who manages with self-determination the realization of his dreams. He has to be adventurous, make decisions in complex contexts, experience uncertainty with pleasure, and prevail in the face of personal, family, and business resource management adversities; There is, therefore, a position that the entrepreneur is a risk manager (Bermejo, 2013;

Peiró, Perdrix, and Torruella, 2012; Beck, 1998; cited by Rodríguez & Borges, 2018).

Risk is a factor of the entrepreneurial spirit, this means that the entrepreneur has a reduced hostility toward risk since if it existed there would be no initiative and effort for the action of undertaking (Aguirre, Jaramillo, Romero & Ruiz, 2017).

The research has a quantitative or positivist approach, applied type research. The level is descriptive, the design is non-experimental cross-sectional. The group of participants was made up of undergraduate and graduate students from the Norbert Wiener Private University, in Peru; all of them completed the Entrepreneurial Attitude Orientation Scale (EAO) questionnaire to perform its confirmatory factor analysis (CFA). The CFA is a flexible statistical technique that allows modeling the relationship between observed indicators and underlying latent variables or factors (Gallagher & Brown, 2013).

The EAO questionnaire, under evaluation, consists of 55 items divided into 8 dimensions: effort/perseverance (items 1-6), innovation (items 7-14), planning and vision of the future (items 15-20), self-esteem (items 21 -28), achievement motivation (items 29-34), responsibility (items 35-42), self-knowledge (items 43-48) and risk (items 49-55), with a Likert scale of four response options. In addition to the instrument, information on variables such as sex and age was collected. The final "n" (sample size) was 271 with a non-probabilistic sampling for convenience. The percentage of women was higher reaching 57.9%; the age representation was 19.6% in the group from 18 to 25 years old, 19.2% from 26 to 33 years old, 21% from 34 to 41 years old, and 40.2% from 42 years old or more.

Development

First, an inspection of the consistency and quality of the data was made. Three surveys with atypical responses were found using a distance criterion (a greater distance means that it is more atypical), which were removed from the analysis for a good representation of the factorial model on the data. Then, a refinement of the elements of the constructs was made through 2 criteria. The first is that the elements of a construct covarying with the elements of another construct must be suppressed (cross-loading) and the second is that the elements with less significance must be suppressed. With both criteria, it is expected to reduce the chi-square considerably. The more the chi-square is reduced, the better the model fits the data. Finally, it was left with 32 elements that will represent the factorial model, whose particular results will be shown in detail to corroborate its empirical sustainability.

Figure 1. *Initial measurement model to determine the entrepreneur profile in university students*

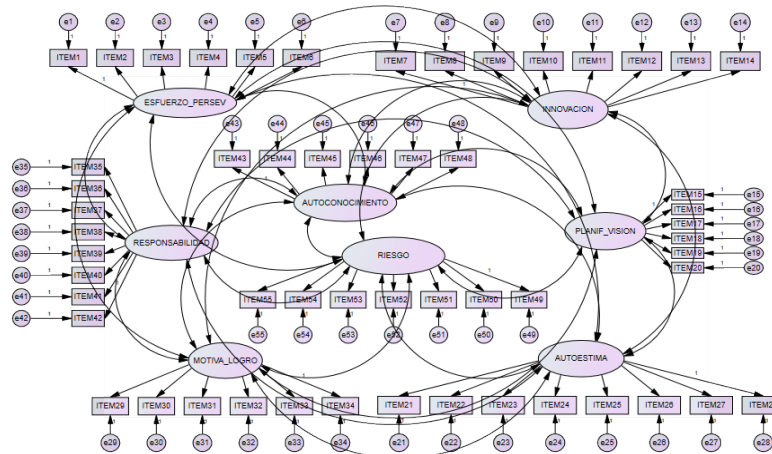


Table 1. Adjustment indicators of the structural model to determine the profile of the entrepreneur in university students

Indicator	Favorable referential values	Initial values	Final values
Chi-square ratio/df or CMIN/DF	> 2	2.13	1.68
Goodness of Fit Index (GFI)	≥ 0.90	0.70	0.86
Root Mean Square Residual (RMR)	< 0.05	0.03	0.02
Adjusted Goodness of Fit Index (AGFI)	> 0.90	0.67	0.83
The Parsimony Goodness-of-Fit Index (PGFI)	0.50 a 0.70	0.64	0.70
Normed Fit Index (NFI)	≥ 0.90	0.78	0.84
Comparative Fit Index (CFI)	≥ 0.95	0.87	0.99
Tucker-Lewis Index (TLI)	≥ 0.90	0.86	0.92
Parsimony Normed Fit Index (PNFI)	≥ 0.70	0.74	0.74
Root Mean Square Error of Approximation (RMSEA)	0.05 a 0.08	0.06	0.05

Note: Favorable referential values taken from Mulaik et al., (1989); Bentler (1992); Taris (2002); Levy (2003); Levy and Varela (2006); Manzano and Zamora (2009); Blacksmith (2010); Towers (2011).

The model has an acceptable fit if the Chi-square/df values are from 2 to 3 and with limits up to 5. The Goodness of Fit Index (GFI) assesses whether the model should be fitted. The closer it is to zero, it indicates a poor fit. The root mean square error index (RMR)

measures the variances and covariances of the sample and whether they differ from the estimates obtained. If this indicator is close to 0, it can be considered a near perfect fit (Taris, 2002).

The Adjusted Goodness of Fit Index (AGFI) is an extension of the GFI, which adjusts the degrees of freedom between the two models. Values close to 0.90 or higher are those that show a better fit for the model. The Parsimony Goodness-of-Fit Index (PGFI) is an index suggested by Mulaik et al. (1989) which constitutes a modification of the GFI and considers the degrees of freedom available to test the model. The magnitudes considered acceptable are in the range of 0.5 to 0.7. The normed fit index (NFI) compares the proposed model and the null model considering an acceptable value if it is greater than 0.90 (Lévy, 2003).

The CFI (Comparative Fit Index) was developed by Bentler (1992) from a previous index (BFI) that corrects to avoid taking values beyond the 0-1 range. The CFI compares the χ^2 of two models: an independent model that maintains that there is no relationship between the model variables, and the model proposed by the researcher. This comparison is corrected for the degrees of freedom (df) of both models. $CFI = ((\chi^2 \text{ Independent Model} - gl) - (\chi^2 \text{ Proposed Model} - gl)) / (\chi^2 \text{ Independent Model} - gl)$. As the χ^2 of the proposed model decreases, the numerator and the denominator become equal, so the ideal situation is that both are equivalent (CFI = 1). That is, the χ^2 of the proposed model is zero. In general, it is considered that the CFI should be around 0.95 to consider that the model adequately fits the data.

The Non-Normalized Fit Index (NNFI), or Tucker Lewis Index (TLI), overcomes the limitations of the NFI when considering the degrees of freedom of the proposed model, as long as its relationship is weak with the sample size. The range of this ranges from 0 to 1,

with values greater than or equal to 0.90 being recommended (Lévy and Varela, 2006). The Parsimony Normed Fit Index (PNFI) relates the constructs to the theory that supports them. The closer it is to 1.0, the greater its relationship is (Torres, 2011). The Mean Square Error of Approximation (RMSEA), represents the anticipated adjustment with the total value of the population and no longer with that of the sample. If RMSEA is less than or equal to 0.05, it indicates an approximation error of the model with reality.

Figure 2. Final measurement model to determine the entrepreneur profile in university students

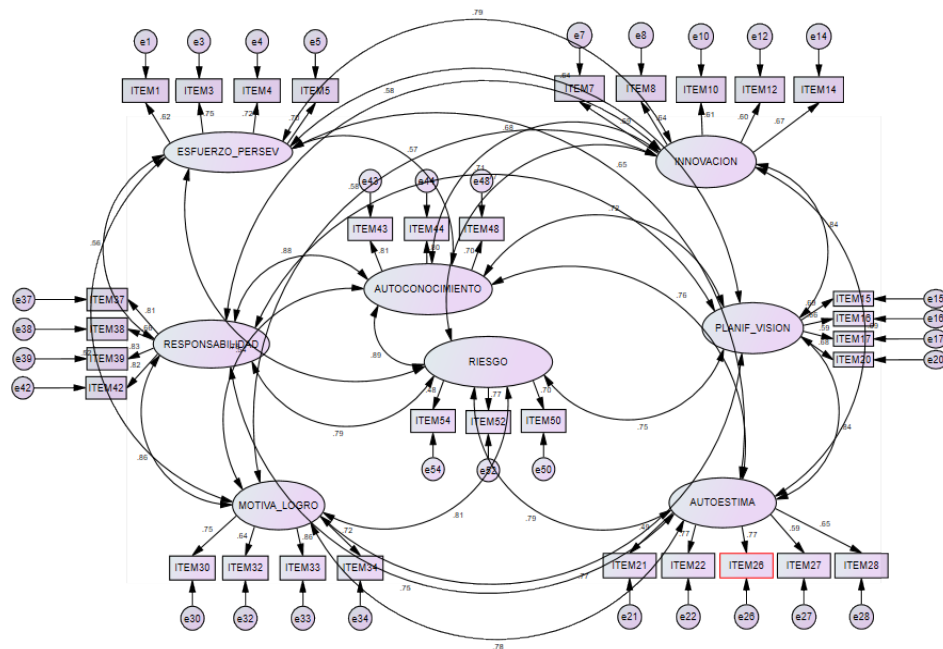


Table 2. Estimated parameters of the structural model to determine the entrepreneur profile in university students

N°	Item content	Dimensions	Estimate	S.E.	C.R.	P	Standardized Regression Weights
ITEM1	I have always worked hard to be among the first.	EFFORT/PERSEVERANCE	1				0.621
ITEM2	If I want something, I work hard to get it.	EFFORT/PERSEVERANCE	1.022	0.109	9.352	* * *	0.750
ITEM3	Dedico una considerable cantidad de tiempo para hacer que las cosas con las que estoy comprometido funcionen mejor.	EFFORT/PERSEVERANCE	0.912	0.1	9.096	* * *	0.719
ITEM4	I spend a considerable amount of time making the things I am committed to work better.	EFFORT/PERSEVERANCE	0.968	0.108	8.937	* * *	0.700
ITEM5	I get excited about doing new and unusual things.	INNOVATION	1				0.689
ITEM6	What really motivates me is thinking of new ideas that stimulate my work as a student.	INNOVATION	0.925	0.1	9.27	* * *	0.636

ITEM7	I enjoy looking for new approaches to known ideas.	INNOVATION	0.87	0.098	8.892	*	0.607
ITEM8	I have more fun trying to do new tasks than routine tasks.	INNOVATION	0.957	0.109	8.808	*	0.601
ITEM9	I feel good about new challenges.	INNOVATION	0.929	0.095	9.748	*	0.672
ITEM10	It is necessary to spend time planning the work.	PLANNING AND FUTURE VISION	1				0.695
ITEM11	To be successful it is important to spend time exploring new opportunities.	PLANNING AND FUTURE VISION	0.83	0.086	9.655	*	0.659
ITEM12	To solve a problem it is important to rethink the starting situation.	PLANNING AND FUTURE VISION	0.78	0.089	8.735	*	0.591
ITEM13	It is important to have clear objectives to then assess the results.	PLANNING AND FUTURE VISION	0.828	0.083	9.979	*	0.683
ITEM14	I am satisfied with my contributions to the projects in which I am involved.	SELF ESTEEM	1				0.654
ITEM15	Me siento bien valorado por los demás.	SELF ESTEEM	1.146	0.137	8.385	*	0.585

ITEM1 6	I consider myself to be a competent person.	SELF ESTEEM	1.117	0.106	10.523	* * *	0.771
ITEM1 7	I am sure of my own ideas and abilities.	SELF ESTEEM	1.277	0.121	10.548	* * *	0.773
ITEM1 8	I feel safe when I am with people who are very capable.	SELF ESTEEM	0.935	0.131	7.117	* * *	0.487
ITEM1 9	Realizing what I am achieving is a stimulus to move forward.	ACHIEVEMENT MOTIVATION	1				0.715
ITEM2 0	Achieving what I set out to do motivates me to work.	ACHIEVEMENT MOTIVATION	1.28	0.097	13.21	* * *	0.865
ITEM2 1	Making mistakes in the process is an opportunity to improve on the way to the goal.	ACHIEVEMENT MOTIVATION	1.003	0.102	9.849	* * *	0.637
ITEM2 2	If I am interested in achieving something, I get excited and get involved to achieve it.	ACHIEVEMENT MOTIVATION	1.083	0.094	11.552	* * *	0.748
ITEM2 3	I assume my degree of responsibility in every situation.	RESPONSIBILITY	1				0.822
ITEM2 4	I acknowledge my share of	RESPONSIBILITY	1.016	0.065	15.66	* * *	0.828

responsibility for mistakes.							
ITEM2 5	I comply with the tasks and deadlines assigned to me by my teachers.	RESPONSIBILITY	0.897	0.0 77	11.6 71	* * *	0.665
ITEM2 6	I assume the functions and tasks that correspond to me when I work in a group.	RESPONSIBILITY	1.014	0.0 66	15.3 05	* * *	0.814
ITEM2 7	I am aware of my main strengths and weaknesses.	SELF-KNOWLEDGE	1				0.812
ITEM2 8	I am open to others evaluating me to improve.	SELF-KNOWLEDGE	0.936	0.0 65	14.4 23	* * *	0.803
ITEM2 9	I am realistic about my abilities.	SELF-KNOWLEDGE	0.767	0.0 63	12.1 36	* * *	0.701
ITEM3 0	I face the situations I fear instead of avoiding them.	RISK	1				0.701
ITEM3 1	Risk is part of life and you have to take it.	RISK	1.016	0.0 9	11.3 34	* * *	0.774
ITEM3 2	I like risk	RISK	0.944	0.1 32	7.18 1	* * *	0.476

Note. Values obtained from the ***p < 0.000 model.

Table 2 shows the estimated parameters of the university entrepreneur profile model, the standard error and the critical value. If the appropriate distribution assumptions are met, the statistic follows a standard normal distribution, under the conception that the null hypothesis of the parameter has a value of zero (Lara, 2014). Observing the results, all the critical values are large, thus fulfilling that all the parameters are significant (**p < 0.000). In addition to this, the weights of the regression are greater than 0.50 (except for item 32), reaching more than 0.80, which demonstrates the robustness of the model.

When verifying the model under study, the importance of updating the study plans in entrepreneurship can be highlighted, as also as the formation of entrepreneurship centers in the Universities that take into account these robust dimensions of the model.

Table 3. *Estimated parameters of covariances and correlations of the factorial model*

DIMENSIONS			Covariances (estimates)	S.E.	C.R.	P	Correlations
EFFORT/PERSEVERANCE	<-- >	INNOVATION	0.189	0.029	6.516	* * *	0.786
EFFORT/PERSEVERANCE	<-- >	PLANNING AND FUTURE VISION	0.152	0.026	5.915	* * *	0.641
EFFORT/PERSEVERANCE	<-- >	SELF ESTEEM	0.141	0.024	5.936	* * *	0.655

EFFORT/PERSEVERANCE	<-- >	ACHIEVEMENT MOTIVATION	0.105	0.01 9	5.41 5	* * *	0.516
EFFORT/PERSEVERANCE	<-- >	RESPONSIBILITY	0.134	0.02 3	5.90 4	* * *	0.559
EFFORT/PERSEVERANCE	<-- >	SELF-KNOWLEDGE	0.146	0.02 5	5.84 6	* * *	0.565
EFFORT/PERSEVERANCE	<-- >	RISK	0.132	0.02 5	5.36 6	* * *	0.544
INNOVATION	<-- >	PLANNING AND FUTURE VISION	0.182	0.02 6	7.07 9	* * *	0.836
INNOVATION	<-- >	SELF ESTEEM	0.136	0.02 1	6.35 4	* * *	0.689
INNOVATION	<-- >	ACHIEVEMENT MOTIVATION	0.107	0.01 8	5.99 3	* * *	0.575
INNOVATION	<-- >	RESPONSIBILITY	0.127	0.02	6.29	* * *	0.579
INNOVATION	<-- >	SELF-KNOWLEDGE	0.161	0.02 4	6.83 7	* * *	0.681
INNOVATION	<-- >	RISK	0.171	0.02 5	6.78 7	* * *	0.766

PLANNING AND FUTURE VISION	<-- >	SELF ESTEEM	0.162	0.02 3	6.95	* * *	0.837
PLANNING AND FUTURE VISION	<-- >	ACHIEVEMENT MOTIVATION	0.141	0.02	7.00 4	* * *	0.767
PLANNING AND FUTURE VISION	<-- >	RESPONSIBILITY	0.154	0.02 2	7.10 9	* * *	0.711
PLANNING AND FUTURE VISION	<-- >	SELF-KNOWLEDGE	0.168	0.02 4	7.05 9	* * *	0.721
PLANNING AND FUTURE VISION	<-- >	RISK	0.166	0.02 5	6.73	* * *	0.754
SELF ESTEEM	<-- >	ACHIEVEMENT MOTIVATION	0.13	0.01 9	6.90 8	* * *	0.777
SELF ESTEEM	<-- >	RESPONSIBILITY	0.147	0.02	7.17 2	* * *	0.749
SELF ESTEEM	<-- >	SELF-KNOWLEDGE	0.162	0.02 3	7.15 1	* * *	0.764
SELF ESTEEM	<-- >	RISK	0.157	0.02 3	6.78 4	* * *	0.79
ACHIEVEMENT MOTIVATION	<-- >	RESPONSIBILITY	0.159	0.02	8.04 8	* * *	0.856

ACHIEVEMENT MOTIVATION	<--	SELF-KNOWLEDGE	0.157	0.02	7.63	*	0.785
	>			1	7	*	
						*	
ACHIEVEMENT MOTIVATION	<--	RISK	0.153	0.02	7.2	*	0.811
	>			1		*	
						*	
RESPONSIBILITY	<--	SELF-KNOWLEDGE	0.207	0.02	8.66	*	0.878
	>			4	8	*	
						*	
RESPONSIBILITY	<--	RISK	0.175	0.02	7.53	*	0.789
	>			3	4	*	
						*	
SELF-KNOWLEDGE	<--	RISK	0.214	0.02	7.92	*	0.893
	>			7	3	*	
						*	

Note. Values obtained from the ***p < 0.000 model

In Table 3, and regarding the estimation of the factorial model (estimation of the factorial loads of the elements in each construct and the covariances between constructs), it can be seen that they are highly significant, which indicates that there is sufficient evidence in the data that support the factorial structure of the measurement instrument. It is seen that the estimated factorial loadings are of the same positive sign in all the constructs, which means that the elements in each construct are additive, that is, they contribute in the same direction to determine the level that the constructs measure. The covariances between the constructs are highly significant and positive as expected. Therefore, the structure is confirmed by the data.

The main objective of this study was to confirm the factorial structure from the constructs proposed in the EAO, being able to

verify it in a sample of male and female Peruvian university students, affirming coherence and consistency with the studies of Ibañez (2002); Krauss (2007) cited by Alda (2010) with some references to the original model of 55 items, only 32 of them being confirmed, distributed as follows: effort/perseverance (items 1-4), innovation (items 5-9), planning and vision of the future (items 10-13), self-esteem (items 14-18), achievement motivation (items 19-22), responsibility (items 23-26), self-knowledge (items 27-29) and risk (items 30-32). If we analyze the dimensions of the construct in detail, we can see that there is a high correlation between the dimensions of effort and perseverance, and innovation (0.786), therefore there is an agreement with that reported by Alvord et al. (2004) cited by Martínez and Deutrénit (2019) where it is indicated that entrepreneurship, in order to be socially successful, will use innovations that not only seek the delivery of resources and services but also the provision of innovation-generating assets.

The planning dimension and vision of the future are strongly correlated with self-esteem (0.837). This finds a connection with the ideas of Ucbasaran, Westhead, Wright, and Flores (2010) where they refer that an excess of optimism or confidence when carrying out an undertaking can generate poor decision-making, as well as the formation of companies unable to cover their expenses to operate, therefore strategic planning according to Burdiles, Castro and Simian (2019), will involve processing the information ideally for said effective decision-making.

Achievement motivation and responsibility correlate strongly (0.856), this makes sense with what was stated by Wigfield & Cambria (2010) when referring to motivation, indicated that it stimulates and directs the actions of individuals, therefore it is of vital importance for their development in different aspects of their lives, such as the start of a business, thus Hwee Nga &

Shamuganathan (2010) indicate that it can be understood that responsibility, in this context, can reduce the rate of business failure.

Self-knowledge and risk are highly correlated (0.893), this is so since Prieto (2018) points out that self-knowledge is the understanding of facts about oneself, from both a mental and psychological perspective, which leads to an immediate response, for This Rodríguez & Borges (2018) point out that an entrepreneur is an active person, who manages with self-determination the realization of his dreams, because he knows himself and is adventurous, capable of making decisions in complex contexts, and living uncertainty with pleasure, existing, then, a position that the entrepreneur is a risk manager.

On the other hand, from the analysis of the adjustment indicators of the structural model to determine the profile of the entrepreneur in university students, it is observed that most of them are fulfilled (6 out of a total of 10, see Table 1), however, there is a certain instability in some indicators, which is based on what was mentioned by Yuan (2005) who indicates that the collectivity of the adjustment indices is not particularly stable when the sample size factor and its distribution cannot be controlled, so suggests taking into consideration the root mean square error approximation index (RMSEA) as it is relatively the most stable adjustment index, which does meet the favorable criteria (RMSEA=0.05).

The findings obtained, reflected in each of the results of the confirmatory factor analysis, allow us to approve and corroborate the empirical sustainability of the Entrepreneurial Attitude Orientation Scale (EAO) for the entrepreneur profile model in Peruvian university students; the set of data presented shows a defensible and sustainable factorial model, the covariances

between the constructs are highly significant and positive, therefore, the structure is confirmed by the data. This scale has adequate properties that allow it to be considered a valid and reliable measure in future research, even adding other sociodemographic variables that are of interest to the evaluated entrepreneurial profile.

Universities must be very aware that they need to strengthen the entrepreneurial profile of their students. This study provides clear evidence that aspects of the 8 dimensions of EAO should be measured and evaluated in greater depth than that shown here, leading to plans or models of entrepreneurship centers that ultimately result not only in comprehensive training but also in clear evidence of social responsibility with their community.

References

- Aguirre, M., Jaramillo, M., Romero, O., & Ruiz, J. (2017). Relación entre los atributos del emprendedor y su capacidad frente al riesgo en las pequeñas y medianas empresas. *Revista Espacios*, 38(59), 12-39. Obtenido de <https://www.revistaespacios.com/a17v38n59/a17v38n59p12.pdf>
- Alda, R. (2010). *Perfil Emprendedor de los Estudiantes de la Facultad de Economía y Administración, de la Universidad Católica del Norte, Antofagasta, Chile* (Tesis Doctoral), Universidad de Deusto, Facultad de CC. EE. y Empresariales, Bilbao.
<http://revistas.uned.es/index.php/reop/article/view/25191/19994>

- Arias, F. (2006). *El Proyecto de Investigación: Introducción a la Metodología*. In *Editorial Episteme* (5th ed.). Editorial Episteme.
- Bentler, P. M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin*, 112, 400-404.
- Casado, A., & Casaú, P. (2019). Personal Self-Knowledge, a key factor for entrepreneurship in people with disabilities. *Journal of Entrepreneurship Education*, 22(2), 1-6. Obtenido de <https://www.abacademies.org/articles/Personal-self-knowledge-a-key-factor-1528-2651-22-S2-433.pdf>
- Casas, J., Repullo, J. R., & Donado, J. (2003). La encuesta como técnica de investigación. Elaboración de cuestionarios y tratamiento estadístico de los datos (I). *Atención Primaria*, 31(8), 527–538. [https://doi.org/10.1016/s0212-6567\(03\)70728-8](https://doi.org/10.1016/s0212-6567(03)70728-8)
- Castilla, H., Caycho, T., Ventura, J., Palomino-Barboza, M., & De la Cruz, M. (2015). Análisis factorial confirmatorio de la escala de percepción del funcionamiento familiar de Smilkstein en adolescentes peruanos. *Salud y Sociedad*, 6(2), 140–153. <https://www.redalyc.org/articulo.oa?id=439742867003>
- Chen, N., Ding, G., & Li, W. (2016). Do Negative Role Models Increase Entrepreneurial Intentions? The Moderating Role of Self-Esteem. *Basic and Applied Social Psychology*, 38(6), 337–350. <https://doi.org/10.1080/01973533.2016.1217223>
- Deza-Loyaga, W. F., Aparicio-Ballena, J. A., Pérez-Arboleda, P. A., y Hidalgo-Lama, J. A. (2021). Competencias de emprendimiento en estudiantes universitarios en Perú:

metodología para su desarrollo. *Revista Venezolana de Gerencia*, 26(96), 1172-1188. <https://doi.org/10.52080/rvgluz.26.96.1>

Falcón, C. E. (2015). La planificación estratégica en la universidad venezolana. Caso: Universidad Central de Venezuela. *Revista de Pedagogía*, 36(99), 157-173. <https://www.redalyc.org/articulo.oa?id=65945575012>

Fernández-Martín, F. D., Arco-Tirado, J. L., & Soriano-Ruíz, M. (2018). Perseverancia y pasión por la consecución de objetivos a largo plazo: adaptación transcultural y validación de la escala Grit-S. *Revista de Psicología Social*, 33(3), 620-649. <https://doi.org/10.1080/02134748.2018.1482060>

Gallagher, M. W., & Brown, T. A. (2013). Introduction to Confirmatory Factor Analysis and Structural Equation Modeling BT - Handbook of Quantitative Methods for Educational Research. In T. Teo (Ed.), *Handbook of Quantitative Methods for Educational Research* (pp. 289-314). SensePublishers. https://doi.org/10.1007/978-94-6209-404-8_14

Gómez, M. & Ríos, L. (2012). Modelo teórico para potenciar el emprendimiento innovador en los estudiantes de pregrado de las universidades de Manizales. *Gestión y Región* 14, pp. 65-82. Obtained from <http://biblioteca.ucp.edu.co/ojs/index.php/gestionyregion/article/view/1037>

Hernández, A. A., Ramos, M. P., Placencia, B. M., Indacochea, B., Quimis Gómez, A. J., & Moreno Ponce, L. A. (2018). Metodología de la investigación científica. In *Metodología de la investigación científica* (IssueFebruary). Área de

innovación y Desarrollo S.L.
<https://doi.org/10.17993/ccyll.2018.15>

- Herrero, J. (2010). El Análisis Factorial Confirmatorio en el estudio de la Estructura y Estabilidad de los Instrumentos de Evaluación: Un ejemplo con el Cuestionario de Autoestima CA-14. *Psychosocial Intervention*, 19(3), 289–300. <https://doi.org/10.5093/in2010v19n3a9>
- Hwee Nga, J. K., & Shamuganathan, G. (2010). The influence of personality traits and demographic factors on social entrepreneurship start up intentions. *Journal of Business Ethics*, 95(2), 259–282. <https://doi.org/10.1007/s10551-009-0358-8>
- Ladu, C. F. (2017). La perseverancia y la estudiosidad en el estudiante de abogacía. *Aequitas*, 11(11), 237–270. <https://dialnet.unirioja.es/servlet/articulo?codigo=7352491>
- Lara, A. (2014). *Introducción a las ecuaciones estructurales en Amos y R*. [http://masteres.ugr.es/moea/pages/curso201314/tfm1314/tfm-septiembre1314/memoriasterantonio_lara_hormigo/!](http://masteres.ugr.es/moea/pages/curso201314/tfm1314/tfm-septiembre1314/memoriasterantonio_lara_hormigo/)
- Lévy Mangin, J. P. (2003). *Modelización y análisis con ecuaciones estructurales*, en J. P. Lévy Mangin & J. Varela Mallou (Eds.), *Análisis multivariable para las ciencias sociales* (pp. 767-814). Pearson Educación.
- Lévy Mangin, J. y Varela Mallou, J. (ed.) (2006). *Modelización con estructuras de covarianzas en ciencias sociales*. Netbiblo.
- Manzano, A., & Zamora, S. (2009). *Sistema de ecuaciones estructurales: Una herramienta de investigación*. Cuaderno

Técnico 4. In Centro Nacional de Evaluación para la Educación Superior. <https://docplayer.es/42086072-Sistema-de-ecuaciones-estructurales-una-herramienta-de-investigacion.html>

Martínez, N., &Dutrénit, G. (2019). Naturaleza de la innovación y modelo de negocios en el emprendimiento innovador. *Problemas Del Desarrollo*, 50(199), 59–85. <https://doi.org/https://doi.org/10.22201/iiec.20078951e.2019.199.67649>

Martín-Moya, R., Ruiz-Montero, P. J., Capella-Peris, C., & Chiva-Bartoll, Ò. (2018). Achievement motivation for learning in physical education students: Diverhealth. *Interamerican Journal of Psychology*, 52(2), 273–283. <https://doi.org/10.30849/rip/ijp.v52i2.953>

Medina, E., Moncayo, O., Jácome, L., &Albarrasin, M. (2017). El emprendimiento en el sistema universitario. *Revista Didáctica y Educación*, 8(1), 163-178. Obtained from <https://dialnet.unirioja.es/download/articulo/6630552.pdf>.

Morales, M., Guzmán, E., & Baeza, C. G. (2019). Personality traits, perception of social support and motivation of achievement as predictors of academic performance in students belonging to programs of inclusion and permanence in university education (PACE). *Revista Pedagogia Universitaria y Didactica Del Derecho*, 6(2), 59–80. <https://doi.org/10.5354/0719-5885.2019.54680>

Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, 105(3), 430–445. <https://doi.org/10.1037/0033-2909.105.3.430>

- OIT (2020). Empleo juvenil en tiempos de la COVID-19: el riesgo de una "generación del confinamiento" Oficina Regional para América Latina y el Caribe. https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/briefingnote/wcms_753103.pdf
- Pedraza, A., Ortiz, C. & Barrios, S. (2015). Perfil emprendedor del estudiante de la universidad industrial de santander. *Revista Educación En Ingeniería*, 10(19), 141-150. <https://doi.org/10.26507/rei.v10n19.550>
- PNUD & OIT (2016). Promoción del Emprendimiento y la Innovación Social Juvenil en América Latina. Estudio regional. Obtained from https://www.ilo.org/wcmsp5/groups/public/--americas/---ro-lima/documents/publication/wcms_533609.pdf
- Prieto, F. (2018). El pensamiento crítico y autoconocimiento. *Revista de Filosofía*, 74, 173-191. Obtained from <https://revistafilosofia.uchile.cl/index.php/RDF/article/view/51889/62141>
- Rodríguez, R., & Borges, E. (2018). El perfil del emprendedor. Construcción cultural de la subjetividad. *Cuadernos de Relaciones Laborales*, 36(2), 265-284. doi:<http://dx.doi.org/10.5209/CRLA.60697>
- Sepúlveda, J., Coria, M. D., Calderón, L. O., Criado, N., Mendoza, J., Salazar, P., & Yung, G. (2017). Características emprendedoras personales y alfabetización económica: una comparación entre estudiantes universitarios del sur de Chile. *Interdisciplinaria*, 34(1), 107-124. Obtained from <https://www.redalyc.org/jatsRepo/180/18052925007/html/index.html>

- Serida, J., Alzamora, J., Guerrero, C., Borda, A., & Morales, O. (2020). Global Entrepreneurship Monitor Perú 2018-2019. Centro de desarrollo emprendedor, Universidad Esan. Obtained from https://www.researchgate.net/publication/339314539_Global_Entrepreneurship_Monitor_Peru_2018-2019
- Taris, T. W. (2002). BM Byrne, Structural equation modeling with AMOS: Basic concepts, applications, and programming Mahwah NJ: Lawrence Erlbaum, 2001 0-8058-3322-6. *European Journal of Work and Organizational Psychology*, 11, 243-246.
- Thomas, C. G. (2021). *Methodology and Scientific Writing (2nd ed.)*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-64865-7>
- Torres S.G. (2011). Una aproximación al análisis de la competitividad aplicando la técnica del modelo de ecuaciones estructurales. *TesCoatl*, 13(31) 1-9. http://www.tesco.edu.mx/gem/DOC/PDF/publicaciones/tescoatl/tesco_pdf_tescoatl31_4_analisiscompetitividad.pdf
- Ucbasaran, D., Westhead, P., Wright, M., & Flores, M. (2010). The nature of entrepreneurial experience, business failure and comparative optimism. *Journal of Business Venturing*, 25(6), 541–555. <https://doi.org/10.1016/j.jbusvent.2009.04.001>
- Vargas, Z. R. (2009). La Investigación aplicada: Una forma de conocer las realidades con evidencia científica. *Revista Educación*, 33(1), 155. <https://doi.org/10.15517/revedu.v33i1.538>

- Vernaza, G., Medina, E. P., & Chamorro, J. (2020). Innovación, emprendimiento e investigación científica. *Revista de Ciencias Sociales*, 26(3), 163–174. <https://doi.org/https://doi.org/10.31876/rcs.v26i3.33240>
- Wigfield, A., & Cambria, J. (2010). *Achievement Motivation*. In *The Corsini Encyclopedia of Psychology*. <https://doi.org/https://doi.org/10.1002/9780470479216.corpsy0008>
- Yuan, Ke-Hai (2005). Fit Indices Versus Test Statistics. *Multivariate Behavioral Research*, 40(1): 115–148. https://doi.org/10.1207/s15327906mbr4001_5

Urban interventions-human transformations. Experiences of the
Samborondón GAD's Program "Improve your neighborhood" and
Linked with the Society-Faculty of Architecture- of The University
of Guayaquil

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Introduction

Latin America is one of the most urbanized regions worldwide, according to a report of the Economic Commission for Latin America, ECLAC with a rate of 80% and in turn one of the most unequal, 75% of its cities have a high inequality index, (ECLAC, 2012). The urban spaces of our cities and communities reflect those inequities. In this way, while in affluent neighborhoods these spaces promote and invite their use and the population can enjoy quality goods and services, for millions of low-income people it is the opposite. The lack of infrastructure, pollution, insecurity, environmental degradation, and gender inequality do not invite its inhabitants to make use of these spaces. Additionally, the "stay at home" for some neighborhoods during the COVID 19 epidemic was not an alternative as evidenced by the reduction in the quality of life of the majority of people who lived in low-income and peripheral neighborhoods, in overcrowded conditions and in spaces too small without sufficient ventilation, front/back yard, or garden. Indeed, the high rates of insecurity, waste in the streets, violence and deterioration of public spaces make the feeling of community retract even more, turning public spaces into hostile spaces that do not invite their use.

In response to this problem, different initiatives have been generated worldwide with the focus of providing a "city on a human scale" (Gelh, 2010); and that is taken up from the time of the activist Jane Jacobs, in her book "Death and life of the big cities" (Jacobs, 2011), in which the main object of this are people, and within this trend Latin America is no exception. In this way, urban interventions have been produced that promote the participation of the population, as a strategy of empowerment of the communities and that through the participation of various actors an approach is promoted to know what the inhabitants of a community want for it and to make them participate in the destiny of this. This is how the term "urban acupuncture" is coined, which through Jaime Lerner has one of its best promoters (Lerner, 2016).

These urban interventions go beyond a transformation of an urban public space. Thus, it is a transformation of the sense of community, of belonging to a place that allows us to see its inhabitants who are an integral part of it, participate and responsible for its transformation.

This paper article deals with the experiences obtained from the proposal made in conjunction with the Improve your neighborhood Program of the Samborondon GAD Linked with the Society-Faculty of Architecture of The University of Guayaquil, in which students, tutors and authorities participated. An intervention was carried out in eight neighborhoods of the cantonal capital of Samborondón, such as: Nuevo Jerusalen, Los Querubines, El Encanto, San Miguel, Av. Malecón, Bolívar, Calle 12, Abdón Calderón (Vinculación FAU, 2018). For this, preliminary preparatory meetings were held in the faculty and the area of intervention of each neighborhood was delimited. Likewise, the different teams of students were organized and coordinated with their tutors. Subsequently, site visits were made to coordinate with the residents and for the execution of the various works to be carried out in the neighborhoods.

The results obtained from this experience allowed to expose the enormous potential of the urban intervention approach involving the community and various actors in the process, allowing the inhabitants to identify with their spaces, empower themselves from the projects, link the

ties of the community as a guarantee for the sustainability of the processes, and for the students it was constituted in an enriching experience in which they were able to apply and put into practice the knowledge acquired in his career, in addition to making an approach to realities different from that of each of them and providing a social sense to the curricular development of the professional training of the future architect.

The problems described allow us to raise the need for the foundations for a new urbanism, raised at the level of "escala humana", where the inhabitants of the cities are at the center of the interventions that are carried out in their spaces, can participate and decide on them. There is also the need to rethink the urban, with a "desde abajo hacia arriba" approach proposed by citizens and through participatory processes, as opposed to the "desde arriba hacia abajo" approach proposed from the governmental and institutional levels, and of which the mixture of the two approaches gave rise to a new way of doing and proposing urbanism in cities in Latin America, to a new, more democratic approach in this search for new ways of making a city (Delgado, and Scheers, 2021).

Additionally, the current problems of cities that are generated from urban dispersion, low-density urban configurations, originating an extended city, which has in turn resulted in urban scenarios where the automobile is the main element in the urban planning of cities, at the expense of the space destined for pedestrians, cyclists, public transport, the increase in pollution, the creation of so-called "urban voids", deserted, deteriorated public spaces, increased crime, the development of closed urbanizations and the privatization of public spaces.

And it is within the framework of this problem that the pillars of a new urbanism are strengthened, promulgated by different actors in this trend, since the times after the Second World War when Dutch citizens complained about the excessive use of the car that caused numerous traffic accidents and in favor of the bicycle, also the activist Jane Jacobs who fought in the decade of the 50-60's against road works Express and the destruction of entire neighborhoods, passing through Jan Gehl,

Danish urban planner in favor of a more human city, the human scale, from the 70's to the present, in turn Jaime Lerner, three times mayor of Curitiba, promoter of the term urban acupuncture, which placed his city as a reference of urban planning in Latin America. At the same time, actors in Colombian cities such as the mayor of Bogotá Antonio Peñalosa and Sergio Fajardo, mayor of Medellín, have made important urban transformations based on this mixture of approaches in a new way of rethinking the urban (Lerner, 2016).

Consequently, the following are established as pillars of this new urbanism:

The SDGs and the New Urban Agenda

The 2030 Agenda and the Sustainable Development Goals (SDGs) were promulgated from September 2015 based on an agreement of 193 member countries of the United Nations. 17 goals were defined, of which objective 11 is the most relevant to city development in terms of "making cities and human settlements safe, resilient, inclusive and sustainable". Subsequently, within the framework of the Conference on Housing and Sustainable Urban Development, Habitat II held in Quito, in 2016 what was called the New Urban Agenda was approved, indicating that urbanism should tend to sustainable development. It mentions the role of citizens and their importance to achieve the proposed goals, in turn the relevance of public spaces to improve the quality of life of the inhabitants of communities and cities (SDG, 2021).

Small-scale urban interventions - Tactical urbanism

This type of intervention is born in contrast to megaprojects that require heavy investments in both time and economic resources. And that they are based on a more local approach and from the citizens or together with them, and sometimes also promoted by local governments. These interventions are recognized as part of a "tactical urbanism", a term born from the United States, which implies making a progressive change in a

local way involving various actors and especially its inhabitants. It can include various types of actions, such as street cleaning, painting, gardening, recreational spaces, cycling routes, planters (*The Street Plan Collaborative*, 2012).

Urban acupuncture

The term urban acupuncture, promulgated by Jaime Lerner, is related to tactical urbanism. Lerner was recognized for the transformation of Curitiba and for the approach of a new approach to urbanism. He conceived the city in an analogical way with the human body, and that the sick or dead points of it had to be treated, through a kind of urban acupuncture or tactical urbanism, for its recovery and incorporation into the urban fabric of the city (Lerner, 2016).

The human scale

This approach is based on the work developed from more than four decades of the Danish architect Jan Gehl, studying the city but from a human approach, with respect to the use of people of public spaces and that makes those pleasant, comfortable, and attractive for use. It uses the senses of human perception of space, distances, and establishes criteria for the study and evaluation of spaces based on basic principles of walking, resting, talking. The design of public spaces is proposed using these principles and technical characteristics that allow achieving a return to the use of these spaces (Gehl, 2010).

The material used in the project was drawn from primary (field data) and secondary (bibliographic data) sources. For the extraction of field data, an exploratory study model of each neighborhood under analysis was followed, with a research design following a descriptive methodology of the current reality, non-experimental and transversal.

A first stage will include the diagnosis and identification of urban, housing and improvement needs, then follows a stage of approach of the

preliminary project or improvement; and in the last stage the design of the projects would be carried out. For the diagnosis and identification of needs, methods such as direct observation, interviews, surveys, data collection, planimeter survey, and participatory design workshops will be used. Subsequently, for the project approach stage based on the diagnosis made, possible solutions to the problems detected were proposed, through a problem tree, contextual analysis, determination of the needs program, functional relationships, area studies, zoning, functional schemes, criteria, and design strategies. In the last part, the designs of the projects were raised through plans and design of architectural improvements and details of urban furniture.

For the realization of the project Improve your neighborhood, work teams were developed led by a tutor teacher and a group of 10 to 20 students per neighborhood. The tutors who collaborated with the project were:

Group 1 and 2, Skalle 12 neighborhood, led by Xavier Cucalón, along with a group of 20 architecture and design students.

Group 3, Abdòn Calderón neighborhood, led by Malena Marín together with 10 architecture students.

Group 4 and 5, Barrio Bolivar, led by Mirian Lomas, and a group of 20 architecture students.

Group 6, El Encanto neighborhood, led by Luis Seis, and Ivan Paredes, PhD along with 10 students of Design and Architecture.

Group 7, Los Querubines neighborhood, led by Carlos Guerrero and a group of 10 Interior Design students.

Group 8, Neighborhood El Salvador and Nueva Jerusalen, led by Juan Carlos Torres and a group of 10 architecture students.

Group 9, San Miguel neighborhood led by Carlos Palacios along with 10 students of Architecture.

Group 10, El Malecón neighborhood, led by Bismark Torres together with a team of 10 architecture students.

The experience of the proposal made in conjunction with the Program Improve your neighborhood of the Samborondón GAD Linked with the Society-Faculty of Architecture of The University of Guayaquil took place in the cantonal capital of Samborondón. The objective was to develop a proposal for neighborhood improvement by participating in a project promoted by Samborondón gad, known as "Concurso Mejora tu Barrio Samborondón". This allowed the improvement of the urban image of approximately 500 houses in the 8 neighborhoods intervened. The contest "Mejora tu Barrio Samborondón" was developed in collaboration with the residents of the cantonal capital and with the institutional support of the Municipality of Samborondón. The neighborhoods that participated were: Barrio El Malecón, Barrio Los Querubines, Barrio Abdón Calderón, Barrio San Miguel, Barrios El Salvador and Nueva Jerusalén, Barrio El Encanto, Barrio Skalle 12, Barrio Bolívar.

The project consisted of the intervention of improvements of the blocks that make up a neighborhood. These improvements were made through proposals for architectural advice, and gardening elaborated by the students of the architecture and interior design careers, who in collaboration with the residents of the neighborhoods built the improvements of the urban image of the neighborhoods. Improvements of different types were developed:

Facade improvements: The students made a study of facades through an analysis of problems that included the collection of information on site, and an architectural solution approach. For this they made a design based on colorimetry and finishes for the improvement of the facades. They also coordinated with the municipality to deliver the materials to the residents of the neighborhood, and together with the residents they elaborated the construction of the improvements that includes the cleaning of facades and application of paint and coatings.

Many houses managed to improve their facades through the application of paints and plasters that allowed to achieve great changes in the urban image of the neighborhood. Below are some images of the work carried out in the Skalle 12 neighborhood that illustrate the before and after of the work of several students that served to increase the quality of life of the population through their technical advice.

Figure 1. *Image of improvement of facades, proposal for Calle 12 neighborhood.*



Note: In the upper part the facades can be seen before the intervention and in the lower part after it. Source: Students: Erika Muñoz, Edison Morocho, Jose Miguel Palma, Andrés Camilo Camargo, David Pacheco, and Joselyn Campozano. Group 2-Faculty of Architecture and Urbanism-University of Guayaquil.

Figure 2. Image of improvement of facades, proposal for Calle 12 neighborhood.



Note: In the upper part the facades can be seen before the intervention and in the lower part after it. Source: Students: Erika Muñoz, Edison Morocho, Jose Miguel Palma, Andrés Camilo Camargo, David Pacheco, and Joselyn Campozano. Group 2-Faculty of Architecture and Urbanism - University of Guayaquil.

Figure 3. Image of improvement of facades, proposal for Calle 12 neighborhood.



Note: In the upper part the facades can be seen before the intervention and in the lower part after it. Source: Students: Erika Muñoz, Edison Morocho, Jose Miguel Palma, Andrés Camilo Camargo, David Pacheco, and Joselyn Campozano. Group 2-Faculty of Architecture and Urbanism - University of Guayaquil.

For this intervention, the students first carried out an analysis of the current state of the homes in the Calle 12 neighborhood. The results of the analysis confirm that the houses were in good condition and the materials used in the constructions of the houses consist of 84% concrete, followed by masonry, bricks and malleable and lower density materials such as cane and zinc (Group 2 Calle 12, 2019). The students presented to the inhabitants, and the authorities of the municipality the creative process they developed for the proposal of design of the facades, and urban furniture of the neighborhood. The students chose the shades of yellow and blue colors to create a contrast in shades and shapes by means of a warm tone opposed to a cold tone. In addition, they generated triangular shapes that were also applied in the design of furniture, and painting of doors and windows.

Many proposals were executed such as the one in the Calle 12 neighborhood, and others received the proposals in the form of a preliminary project to allow the owners of the beneficiary homes to manage timely financing to execute the proposals that were made as part of the professional advice that the students provided in their architectural design specializations, interior, and garden design.

The improvements that were executed, could be made through a collaborative work between the students, and residents of the intervened neighborhoods, together with the sponsorship of the Municipality of Samborondón who facilitated the delivery of paint, reeds, zinc, cement, and quarts for the realization of the works proposed by the students.

It should be noted that the preliminary activities in addition to the inventory and analysis of the current state of the houses consisted of the coordination of the delivery of materials donated by the Municipality of

Samborondón to the residents who had registered in the contest. The students oversaw receiving the material, quantifying, and distributing it to their beneficiaries according to a previous list developed by the Municipality.

Some groups of students collaborated with the coordination between the municipality and the residents. In addition, they developed proposals for the optimization of the use of the materials delivered so that everything that the residents received was used properly for the improvement of the homes registered in the program.

Figure 4. Students together with the residents of the Barrio Los Querubines in the distribution of the material delivered by the Municipality of Samborondón for the execution of the project.



Source: Community outreach Project. Project: Urban and Social Processes of Habitat for the Urban-Housing Improvement of Rural Areas of Samborondón.

Figure 5. *Andrea Rodríguez, student of Interior Design leading the logistics for the delivery of the materials received to the residents of the sector.*



Source: Community outreach Project. Project: Urban and Social Processes of Habitat for the Urban-Housing Improvement of Rural Areas of Samborondón.

Vacant lot cleanup work was also carried out: Students collaborated with residents in cleaning up empty land and flowerbed areas. We can highlight the case of the intervention carried out in the Abdón Calderón neighborhood which also included the preparation of the facades and cleaning of sidewalks. The residents of each dwelling are responsible for

these tasks and the result was a clean and unobstructed space for pedestrian traffic.

Treatments of planters and gardening, treatment of signage and urban furniture were carried out: The students designed proposals of urban furniture that were built together with the population. For this they elaborated architectural designs and the approach of the type of vegetation, they also managed resources for the donation of plants and materials that were used for its construction.

Treatments of planters and gardening, treatment of signage and urban furniture were carried out: The students designed proposals of urban furniture that were built together with the population. For this they elaborated architectural designs and the approach of the type of vegetation, they also managed resources for the donation of plants and materials that were used for its construction. Another result obtained were improvements of enclosure and elaboration of murals: The students together with the residents of the neighborhood, and the tutors develop proposals for the treatment of walls through murals with folkloric motifs or messages of values. These types of murals were designed according to a theme together with the community. The experience of urban intervention carried out by the students, inhabitants of the neighborhoods and Samborondón GAD highlighted the potentialities, limitations, and challenges of this type of approach, in terms of organization with students, residents and the institution of Samborondón GAD. For each of the neighborhoods intervened, the architecture and interior design students were divided into several working groups, who delivered as a final product a document that details the survey of the current state of the neighborhood along with an analysis of problems, and plans that detail the architectural proposal for the improvement of the facades, design of urban furniture, details of murals and signs. This information was delivered to the president of the neighborhood committee of each neighborhood to serve as a management instrument for future improvements and to the municipality. The information generated by the students served as a baseline for proposals for neighborhood improvements in the Samborondón canton and allowed to promote in the community a sense

of relevance and became in turn a tool for the municipality to evaluate and develop neighborhood improvement programs with low-budget but high-impact interventions.

In addition, new questions and topics arise as results of this type of projects for new studies on the impact achieved by promoting urban acupuncture and tactical urbanism projects such as the one carried out in the cantonal capital of Samborondón, conceived as strategies to deal with areas in which it is necessary to revalue the urban image, and transform sick or depressed spaces into vibrant areas, and improve the institutional image of parishes' GADs.

It should be noted, however, that for the implementation of this type of participatory urban intervention projects, a high organizational and logistical capacity is necessary to coordinate students, teachers, residents, institutional representatives, and resources such as: transportation, travel expenses, students' insurance, materials for renovations. The commitment of the different actors involved is essential, as well as the communication and monitoring of the different stages. Therefore, the proximity between the actors such as the promoting institutions, in this case Samborondón GAD and the Outreach Department of the Faculty of Architecture of the Guayaquil University was essential.

Finally, it is vital to highlight the opportunity for students and teachers-researchers to approach ancestral local knowledge and to be able to apply and verify participatory and scientific research methodologies from local contexts (Gourmelon et al. 2013).

The intervention of improvements that was carried out in the cantonal capital of Samborondón through the Program Improve your Neighborhood, allowed to show the potential of this approach of the application of tactical urbanism and urban acupuncture as one of the most powerful means to transform and empower communities, allowing in turn an approach to students to other realities and the strengthening of the relationship between local government institutions and academia. One of the fundamental points for the transformation that was achieved in the

different neighborhoods in which the interventions were carried out was the participation and involvement of residents for decision-making, which allowed not only an empowerment of the project but a positive acceptance for the generation of changes that catalyze urban improvements.

The institutional support and involvement of the academy generated a motivation in the residents and students that allowed the proposals to be built together with the population, and that the students managed to put into practice their academic knowledge in the generation of proposals based on a reality, with limitations of budgets and specific needs, that sometimes are not perceived in the classrooms.

The proposals for improvements proposed by the students that were not built but were delivered to the community serve as instruments of budgetary management between the different neighborhood representatives and the municipal GAD. They are technical studies carried out by students specialized in the branches of architecture and design, careers of great relevance for the social and economic transformation of cities, which arose from an analysis of the needs of each neighborhood in a personalized way. This type of transformation allows the municipality to perfect the interventions that were carried out, evaluate future proposals that can be replicated in other enclosures in which urban and public space needs are identified. The future interventions proposed by the municipality can be oriented to the generation of progressive changes in areas of greater tension.

Additionally, it should be mentioned that the Improve your Neighborhood project promoted by the GAD in conjunction with the academy sought a human transformation from the involvement of the population in decision-making to the promotion of its execution, since its planning was participatory. This allowed the community to appropriate the project and identify with the interventions carried out on the facades of their houses, and in the proposals for public equipment, interventions in murals and urban furniture. Additionally, in each of the proposals the

cultural identity of the people from Samborondón were reflected and its human values, culture, art and idiosyncrasies were reinforced.

Finally, it is necessary to highlight that in this type of projects its potential is expressed and shown in the current moments, in which from the COVID 19 epidemic, the construction of organizational capacities and empowerment of communities is essential for the development of community resilience in the face of adversities and their human and cultural potentialities.

References

- CEPAL (2012). *Comisión Especial de la CEPAL sobre Población y Desarrollo*. Población, Territorio y Desarrollo Sostenible, Ecuador 2012.
- Delgado A., y Scheers J. (2021). *Participatory Process for Land Readjustment as a Strategy to Gain the Right to Territory: The case of San Jose-Samborondon-Guayaquil*. Land Use Policy. <https://doi.org/10.1016/j.landusepol.2020.105121>.
- Jacobs, J. (2011). *Muerte y Vida de las Grandes Ciudades*.
- Gehl, J. (2010). *Ciudades Para la Gente*.
- Gourmelon, F., Chlous-Ducharme, F., Kerbirou, CH., Rouan, M., Bioret, F., (2013). *Role-playing game developed from a modelling process: A relevant participatory tool for sustainable development? A co-construction experiment in an insular biosphere reserve*. Land Use Policy 32, 96–107. <http://dx.doi.org/10.1016/j.landusepol.2012.10.015>.
- Grupo 2 Skalle 12, (2019), Proyecto de vinculación Proyecto Procesos Urbanos Y Sociales De Hábitat Para El Mejoramiento Urbano-Habitacional De Las Zonas Rurales De Samborondón, Facultad de Arquitectura y urbanismo Universidad de Guayaquil.

Lerner, J. (2016). *Acupuntura Urbana*.

SENPLADES (2013). *Plan Nacional del Buen Vivir 2013-2017*. Quito-Ecuador. Secretaria Nacional de Planificación y Desarrollo.

The Street Plan Collaborative (2012). *Urbanismo Táctico 2*. https://issuu.com/streetplanscollaborative/docs/urbanismo_tactico_2_digital_edition

ODS, Objetivos de Desarrollo Sostenible (2021). <https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/>

Vinculación FAU (2018). <https://vinculacionfau.wordpress.com/>

Higher education, scientific research and economic activity

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Introduction

In the analytical framework of Economic Growth theories, technological progress has been studied from two approaches; the microeconomic approach, based on creative destruction, which is a type of innovation that consists of continuous technological development in the business environment (Kenney et al., 2014). While, in the macroeconomic approach, technological change consists of improvements that transcend the scope of the individual company until they become improvements for the economy (Vázquez, 2005), that is, the capacity of the economy to transfer the knowledge that generates technological change from one sector to another (Rios et al., 2017).

From the Solow-Swan growth model (1956 and 1957), knowledge enters the research program of the dominant orthodox current, the main result of these authors was to point to technological change

as the essential element of economic progress. This first formal model of economic growth in the orthodox school caused subsequent developments to focus on the need to improve the skills and abilities of the workforce through on-the-job experiential training and, to a lesser degree, in higher education as an element capable of training people. The analysis regarding the training provided by higher education was directed especially to its effect on personal income (Mincer's equations). Becker (1964) in his text "Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education" states that a large number of workers increase their productivity, obtaining new qualifications and perfecting the set of skills they possess by accumulating knowledge; In this way, the idea is presented that the amount invested in education has a notable role in the formation of human capital. For his part, Lucas (1988), using schooling and experiential learning as proxy variables for human capital, presents an analysis of how the accumulation of human capital affects economic growth (Mungaray & Torres, 2010). This development led to fairly widespread agreement (Drèze and Sen, 1995; Levine and Renelt, 1992; Levine and Zervos, 1993; World Bank, 1993) that improves the productive capacity of labor promote economic growth.

However, measures of human capital formation are not very satisfactory, some of them, such as literacy rates, are extremely basic and do not distinguish between skill levels among literate people. The measurement of human capital has generated heterogeneity of results, even when similar proxy variables are used. This is how, according to Barro and Sala-i-Martin (1995), female schooling is negatively associated with economic growth. According to de Soysa and Oneal (1999), however, female education contributes to the increase in the stock of human capital and to the progress of the economy. Whereas Pitlik (2002) could not even find significant effects of human capital on growth rates.

Given these problems with current attempts to assess human capital formation and its impact on economic growth it seems justified to propose alternative ways of representing this category (Kämpf & Weede, 2002).

Starting from proposing education as a branch of the economy in which something quite similar to a central planning process is practiced, since knowledge is an essential resource in the economic wealth of a nation, its management in a globalized world emphasizes the ability to stimulate innovation, human talent, education and economic development, which is currently characterized by the rapid expansion of technological progress, as well as a strong demand to increase competitiveness (Pedraza, 2021).

According to Cuentas (2018), the university plays a fundamental role in the performance of the innovative activities of companies and in the productivity of workers, that is, the way in which knowledge is managed, knowledge applied to third-level education is transformed into a way of directing scientific and technological resources in a systematic way in order to achieve the objectives proposed by the institution and society in general. In this sense, Bertero et al. (2014) presents the conception that the University as an institution appears from a concrete process of economic, social and intellectual development that is reflected in a process of synergy between the missions of teaching, research and social bonding. The university and society link is perceived as the interrelation between academic activities and society as a whole, the knowledge generated in the university, in addition to representing plausible solutions for a set of social problems, also directs, enriches and supports the training programs of workers, scientific research and technological progress. It should be noted that the linking process is synergistic, since the relationship

between the knowledge generated in the university and the productive and social environment allows feedback that strengthens the development of the academy and the quality of its services (Arias et al., 2012). In recent years, in Ecuador, the university-productive environment link has been observed as a strategic axis of growth for the productive sector, therefore, the university-company link can be promoted through economic support through access to public financing such as programs, funds and support to promote innovation. This is how the questions that guide this research arise: What kind of impact do universities have on Ecuadorian economic activity? How are the different educational levels in Ecuador interrelated?

The first social function of the University focuses on training high-level professionals, with historical awareness and civic spirit, capable of recognizing the situation of their societies and understanding their duties towards their fellow citizens (Bertero et al., 2014). Therefore, the generation of knowledge in Higher Education will influence the strategic objectives, the mission and the institutional policy, since it allows the achievement of better results in students and future professionals. At least two forms of knowledge creation are established: first, the one that distinguishes between the passage from the theoretical to the applied; second, it is the process that links university students with society (Gibbons et al., 1997). Therefore, the University plays an essential role in building a society with better development opportunities. Barreno et al. (2018) mention that in Ecuador the relationship with society is regulated by: "The Organic Law of Ecuadorian Higher Education (LOES- Spanish acronym), the Ecuadorian Network of Universities and Polytechnic Schools for Research and Postgraduate Studies (REDU- Spanish acronym), the Regulation of the Academic Regime in the Higher Education System (RRA- Spanish acronym) and the Ecuadorian University Network of Linking with the Collectivity

(REUVIC- Spanish acronym), in this aspect, Art. 13 of the LOES mentions that the link with society is a substantive function of higher education, together with the functions of teaching and research. In turn, Article 107 of the Organic Law of Ecuadorian Higher Education indicates that in order to complement relevance, Higher Education Institutions must link the offer of research, teaching and linkage with society. to the academic demand, to the set of requirements to reach a better level of development, be it local, regional or national, to the innovation processes, to the behavior of the labor market be it at the local, regional and national level, to the link with the structure current and potential productivity of the regions, and national science and technology policies. Through Art. 125, Higher Education Institutions must create programs and courses for linking with society that respond to a well-structured program with a set of correctly defined objectives.

For its part, REUVIC is a university organization that seeks to bring closer, communicate and relate mainly Higher Education Institutions and public and private institutions with society as a whole; Thus, its main goal is to make visible the link with society as a central element of articulation between teaching and research through a set of theoretical and methodological proposals that are generated from the country's Higher Education Institutions.

Meanwhile, REDU seeks to promote inter-institutional programs, projects and activities, through the exchange of experiences, resource management mechanisms to support the development of the university and the country from the link with the society." (pp.42-43).

In the linking process, the Company-Government-University are related, in this sense, the University through a process guided by teachers who are in charge of planning, executing and directing the

process, followed by the students who are in charge of applying their knowledge, their abilities and skills acquired at the university. Thus, for the university, the linking process is a mechanism that can improve research and teaching functions by creating a better integration strategy with the requirements of society. From the perspective of the company, the linking process is capable of generating higher levels of competitiveness in the market by increasing the productivity of the procedures that configure better product levels through a transferred know-how that ensures higher quality and lower costs. While from the governmental perspective, policies are developed that allow a synergy between the productive sector and the universities through the creation of linkage projects with public support.

According to Vera (2016) in industrialized countries, in general, they are the main leaders in the process of linking university-industrial environment. For this reason, these nations take advantage of the capacity and culture of their inhabitants in terms of their creativity and have been concerned with preparing the population of their country in the educational field in the best possible way, thus strengthening the productive capacity of work and staying at the forefront of technical and scientific progress. While in Latin American countries the university-productive environment link has the opposite behavior, there is little relationship between university research and the need for innovation to reduce costs by companies. In this sense, it is observed that the correction of this deficiency requires the systematic intermediation of the State in order to harmonize the research agenda and collaboration between universities and local firms, whether public or private.

The possible access to better quality education at its various levels is reflected in a population with better preparation, better material well-being and greater social cohesion. Paradoxically, the way in

which tertiary education and economic growth are related was not adequately added to conventional theoretical models within the mainstream or orthodox until a few decades ago, and even less has its impact been thoroughly evaluated in Latin American countries.

The general objective is focused on analyzing the effect of higher education on economic activity in Ecuador between 1970-2020. The approach of this document has an interesting element, since analyzing the number of existing students in the third level of education is a good approximation of analysis of the demand for tertiary education, it also allows studying the capacity that universities have to absorb people who make the decision to study at the third level. Therefore, a higher level of demand for higher education represents the belief of a higher level of economic well-being for the individual in the future. Additionally, the better absorption capacity of the universities means that the intermediation of higher education for the formation of human capital works correctly, since providing better opportunities to access education translates into potential favorable effects for the functioning of the economy. In this sense, in the case of Ecuador, the impact of higher education on economic activity in the short and long term has not been empirically analyzed in depth.

The rest of the document is organized as follows: in the second part materials and methodology are described, in the third part the empirical model and the methodological aspects of the research are described, in the fourth part the results are presented and then a discussion of the empirical evidence is shown and finally the conclusions are shown.

In order to plan and develop this proposal, a quantitative methodology is used in two phases: first, the descriptive method is used to collect information to be used as input for the ex post facto

research method, since this research seeks to verify the existence of cause-effect relationships between the selected variables, this type of research is conducive to econometric modeling that makes it easier for us to estimate the effect of tertiary education on economic growth.

The basic modality of this research is indirect, because it is based on the collection of data from official sources of statistical information in the period 1971-2020. It is experimental because from the collected information the variables are related to specify a cause-effect relationship, for the econometric modeling the following phases are developed: specification, estimation of the parameters, diagnostic tests and hypothesis contrasts and the final phase is used to predict or propose policies. Time series data are proposed since the observations from official sources are obtained over a period of time.

In the specification and estimation processes of the model, the variables Gross Domestic Product (GDP_t) are used as an approximation of the behavior of economic activity, consumption spending is used as an approximation of public spending on education (GC_t) and the tertiary level quantity demanded (Sup_exp_t). Additionally, some variables that personify the demand in primary ($Prim_exp_t$) and secondary (Sec_exp_t) education are incorporated. These last variables are included, on the one hand, as control variables, and, on the other hand, they allow the magnitudes of the different coefficients to be compared and the relationship between each of the levels of education to be analyzed (see equation 3). The chosen econometric specification has the following functional form in terms of natural logarithm:

$$Ln_GDP_t = \beta_0 + \beta_1 Ln_GC_t + \beta_2 Ln_Prim_exp_t + \beta_3 Ln_Sec_exp_t + \beta_4 Ln_Sup_exp_t + \varepsilon_t \quad (1)$$

In the present investigation, the estimation method is carried out in two steps: first, a VAR (ρ) type model is used to determine, through the use of information criteria, the optimal number of lags for the specification of the VEC type model ($\rho - 1$). Second, the model type VEC ($\rho - 1$) is estimated, which is specified following the formulation presented by Campo & Sarmiento (2011):

$$Y_t = \alpha + \sum_{i=1}^{\rho} \delta_i Y_{t-i} + \varepsilon_t \quad (2)$$

$$\Delta Y_t = \alpha + \sum_{i=1}^{\rho-1} \varphi_i \Delta Y_{t-i} - \delta Y_{t-1} + \varepsilon_t \quad (3)$$

Where α is the constant, ε_t is the error and is white noise, while:

$$Y_t = [Ln_GDP_t, Ln_GC_t, Ln_Prim_exp_t, Ln_Sec_exp_t, Ln_Sup_exp_t]^t, \quad \delta = I - \delta_1 - \delta_2 \dots - \delta_{\rho}, \quad \varphi_i = -I + \delta_1 + \delta_2 \dots + \delta_{\rho}, \quad i = 1, \dots, \rho - 1.$$

φ_i are the long-term effects and δ is responsible for capturing the short-term effects.

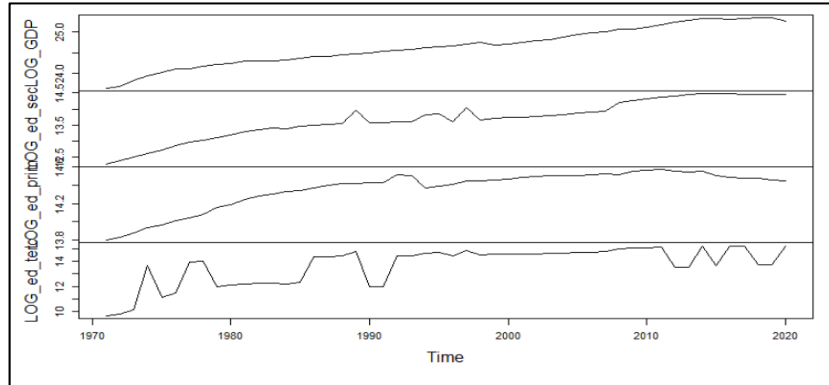
The data collection strategy is by non-participatory observation, that is, the data is obtained from the official government information sources of Ecuador such as the National Institute of Statistics and Census -INEC-, the Central Bank and the National Information System additionally, information is collected from information sources of official multilateral organizations such as the World Bank and the Economic Commission for Latin America and the Caribbean -CEPAL-. The Gross Domestic Product and social spending are measured in constant prices and are obtained through the official government information sources of Ecuador, the variables related to education are constructed through the totality of the corresponding enrollment for each year and are It is found as the number of people, these data were obtained from the databases of the World Bank and the Economic Commission for Latin America and the Caribbean -ECLAC-, it is worth indicating the

variable number of students in the higher level was constructed from the enrollment in the third level in each year, additionally, due to the fact that there are missing data, the method of imputation of conditioned means is used, which, based on covariates correlated with the variable of interest, forms groups and imputes the set of missing data with observations from of a subsample that has common characteristics (Medina & Galván, Data imputation: theory and practice, 2007).

To avoid obtaining spurious relationships, unit root tests are applied in order to determine stationarity or not, then cointegration must be tested to verify if there is a long-term relationship between them. In this work, the augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test are applied on the residuals of the simple regression are stationary to test if the variables are co-integrated, additionally it was tested if the residuals are white noise, using the Ljung-Box test. The test proposed by Johansen and his cointegration methodology are also used in order to test whether there is a long-term relationship between the different variables. It should be noted that the free econometric software R is used with its R-Studio interface, which is considered one of the best econometric software today.

This is a time series study, which consists of annual time series of GDP, public government spending, demand for higher education, demand for education at the primary and secondary levels. The series are obtained from the World Bank and the Central Bank of Ecuador. Graph 1 shows the series in logarithms for the study period, we can see that from figure 1, the series are apparently correlated. This result of the preliminary analysis provides a first approximation that gives strength to the hypothesis of this study, which suggests that there is a short- and long-term relationship between higher education and economic activity.

Figure 1. Logarithmic series of the variables



Note. Source: Own Elaboration

Unit root tests

The Phillip-Perron (PP) and Kwiatkowski-Phillips-Smichdt-Shin (KPSS) tests were applied, it is concluded that the series are integrated of order one in levels and of order zero (stationary) in differences. Due to this, a classic model is made with the series to determine if their residuals cointegrate, for this the ADF (augmented Dickey-Fuller) test is applied, which indicates that the null hypothesis of unit root must be rejected at 0.05 significance, since that the critical value is -1.95 and the calculated t value is -1.9993, that is, there is stationarity of the residuals, additionally, the PP (Phillips-Perron) confirmation tests and the Ljung-Box test were performed (see table 1), these two tests allow us to verify that the residuals are stationary, which confirms that the variables are co-integrated.

Table 1. *Unit Root Tests on Residuals*

Modelo	Tests on Residuals	Results
m1 (residuals)	Phillip-Perron	Z_rho = -15.8 p-value = 0.01
m1 (residuals)	Augmented Dickey-Fuller	t-stadistic=-1.9993 p-value = 0.01
m1 (residuals)	Ljung-Box	X-squared = 80.168 p-value < 7.772e-16

Note. Source: Own Elaboration

Cointegration Test

For the cointegration test or fit, the number of lags to include must be specified. By means of the methods implemented in varsoc it is possible to determine the order of lags for a VAR model with 1 (1) variables. The order of the corresponding VEC is always one less than the VAR. For each lag length, the table reports the Akaike Information Criterion (AIC), the Schwarz Bayesian Information Criterion (BIC), the Hannan and Quinn Information Criterion (HQ) and the Chi Square statistic (M(p)). The criteria are based on information theory and are supposed to indicate the relative information lost when data are fitted using different specifications. The lag length that produces the minimum value of the information statistic is the chosen specification. In this case, the AIC, BIC and HQ criteria choose 7 lags (see Table 2).

Table 2. Order of the lags

VARorder (Vec_base, maxp=10)					
selected order: AIC = 9					
selected order: BIC = 9					
selected order: HQ = 9					
Summary table:					
p	AIC	BIC	HQ	M(p)	p-value
0	-12.6423	-12.6423	-12.6423	0	0
1	-19.0812	-18.4649	-18.8482	251.3004	0
2	-18.9537	-17.7300	-18.4877	16.1431	0.4430
3	-19.0396	-17.2041	-18.3406	19.9623	0.2219
4	-19.3462	-16.8988	-18.4142	22.2459	0.1354
5	-19.3921	-16.3329	-18.2271	13.3746	0.6452
6	-19.9137	-16.2426	-18.5157	18.0048	0.3236
7	-19.8988	-15.6158	-18.2678	7.1883	0.9695
8	-20.8430	-15.9483	-18.9791	11.8819	0.7521
9	-27.2803	-21.7737	-25.1833	24.7704	0.0740

Note. Source: Own Elaboration

The Johansen test was applied, Table 3 presents the results of the Maximum Likelihood Cointegration tests based on the range of the δ matrix in equation (2), the Trace and Maximum Eigenvalue tests. The results of the Cointegration test imply that the null hypothesis of no Cointegration in both tests, that is, $H_0: r = 0$, is rejected at the 5% significance level, since the statistic calculated for each one is greater than the critical value, in turn the null hypothesis of the existence of at least 2 cointegration vectors was not rejected (see table 3). Based on the result obtained with the Johansen Cointegration Test, the Error Correction Model of this methodology is derived, the specification is used to collect the

cumulative effects of L/P to collect the possible effects of structural breaks in the variables.

Table 3. *Johansen test*

Number of vectors cointegration	test	10pct	5pct	1pct
r ≤ 3	11.38	10.49	12.25	16.26
r ≤ 2	14.39	16.85	18.96	23.65
r ≤ 1	30.78	23.11	25.54	30.34
r = 0	65.72	29.12	31.46	36.65

Note. Source: World Bank and Central Bank of Ecuador

Based on the VEC model, after applying the Johansen Cointegration Test, the adjustment dynamics can be analyzed in the short and long term, it is found that there are at least two cointegration relationships. It is observed that for the study period only primary education and third level education have a long-term relationship with respect to the Gross Domestic Product, it should be noted that the long-term coefficients measure elasticity. Of the two cointegration vectors we focus on the first, since the error correction term is negative, it is significant and in absolute value it is between 0 and 1, this confirms that there is not only a long-term equilibrium relationship between the independent and dependent variables at a significance level of 5%, but its relative value (-0.9243) for the Ecuadorian case shows a rate of convergence to the equilibrium state per year. Precisely, the speed of adjustment of any imbalance towards a long-term equilibrium is that around 92.43% of the imbalance of the Gross Domestic Product is corrected each year (see table 4). This implies a faster adjustment in the error correction model of the Gross Domestic Product.

Table 4. *Cointegration vector*

Error correction term				
	Estimate	Std. Error	t value	Pr(> t)
ECT1	-0.924378	0.323581	-2.857	0.01561 *
ECT2	0.118331	0.152270	0.777	0.45348
Normalized cointegration equation (long-term dynamics)				
COEFICIENTS	ECT1		ECT2	
LOG_GDP.l8	1.00000000		0.00000000	
LOG_ed_sec.l8	0.00000000		1.00000000	
LOG_ed_prim.l8	-0.30895016		-1.15275044	
LOG_ed_terc.l8	-0.02318701		-0.07215712	
trend.l8	-0.02804901		-0.02283169	
Signif. codes: 0.001 '***' 0.01 '**' 0.05 '*' 0.1 '.'				

Note. Source: Own Elaboration

From the previous table, it is found that the long-term elasticity of third-level education is significant with respect to the Gross Domestic Product, that is, in the long term, a 1% increase in third-level education generates a increase in the Gross Domestic Product of 0.02318%, therefore, in the long term, third level education affects the Gross Domestic Product. On the other hand, primary education impacts the Gross Domestic Product in the short and long term for the period under study. Meanwhile, secondary education impacts the Gross Domestic Product only in the short term (see table 5).

Table 5 *Short term dynamics*

COEFICIENTS	Estimate	Std. Error	t value	Pr(> t)
Constant	18.340799	6.832875	2.684	0.02125 *
LOG_GDP.dl1	-0.569786	0.272391	-2.092	0.06045
LOG_ed_sec.dl1	0.078566	0.064864	1.211	0.25118
LOG_ed_prim.dl1	0.039251	0.224287	0.175	0.86426
LOG_ed_terc.dl1	-0.004431	0.005678	-0.780	0.45159
LOG_GDP.dl2	-0.406581	0.262107	-1.551	0.14913
LOG_ed_sec.dl2	0.050528	0.084707	0.597	0.56291
LOG_ed_prim.dl2	-0.035107	0.221780	-0.158	0.87709
LOG_ed_terc.dl2	0.005581	0.006792	0.822	0.42873
LOG_GDP.dl3	-0.428965	0.213223	-2.012	0.06938.
LOG_ed_sec.dl3	0.106276	0.094732	1.122	0.28581
LOG_ed_prim.dl3	0.053852	0.191900	0.281	0.78421
LOG_ed_terc.dl3	0.013583	0.007371	1.843	0.09245.
LOG_GDP.dl4	-0.509407	0.226512	-2.249	0.04598 *
LOG_ed_sec.dl4	0.226481	0.097964	2.312	0.04116 *
LOG_ed_prim.dl4	0.266323	0.196874	1.353	0.20328
LOG_ed_terc.dl4	0.004091	0.009936	0.412	0.68846
LOG_GDP.dl5	-1.002389	0.278633	-3.598	0.00419 **
LOG_ed_sec.dl5	0.259380	0.102973	2.519	0.02853 *
LOG_ed_prim.dl5	0.597901	0.201265	2.971	0.01273 *
LOG_ed_terc.dl5	0.007519	0.011069	0.679	0.51103
LOG_GDP.dl6	-0.726290	0.296187	-2.452	0.03212 *
LOG_ed_sec.dl6	0.213224	0.119787	1.780	0.10268

LOG_ed_prim.dl6	0.444644	0.255789	1.738	0.11003
LOG_ed_terc.dl6	-0.002555	0.010589	-0.241	0.81378
LOG_GDP.dl7	-0.444683	0.286147	-1.554	0.14846
LOG_ed_sec.dl7	0.131398	0.138900	0.946	0.36447
LOG_ed_prim.dl7	0.443239	0.271226	1.634	0.13048
LOG_ed_terc.dl7	0.010221	0.009249	1.105	0.29271
Signif. codes: 0.001 '***' 0.01 '**' 0.05 '*' 0.1 '.'				
Residual standard error:	0.0211 con 11 g.l	Multiple R-squared:		0.9236
Adjusted R-squared:	0.7083	F-statistic on 31 and 11 DF:		4.29
p-value: 0.006971				

Note. Source: Own Elaboration

The diagnostic tests are carried out, it is observed that the model does not present a serial correlation in the residuals, in addition, it is confirmed at 5% significance that the residuals do not present normality (this result is expected in this type of model), a diagnostic test highly important is the homoscedasticity of the variance of the residuals, it is observed that in the model the variance of the residuals is constant (they are homoscedastic) (see table 6).

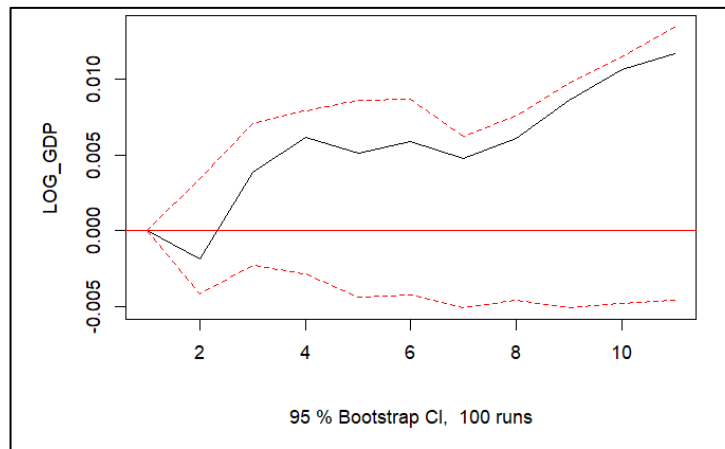
Table 6. *Diagnostic test*

Test	Result	Null hypothesis
Breusch-Godfrey Test (correlación serial)	Chi-squared = 168, p-value = 0.0836	no serial correlation in errors
ARCH (multivariate)	Chi-squared = 330 p-value = 1	no presence of heteroscedasticity
JB-Test (multivariate)	Chi-squared = 16.276 p-value = 0.006098	Non-normality of the residuals
	Chi-squared = 15.767 p-value = 0.0459	

Note. Source: Own Elaboration

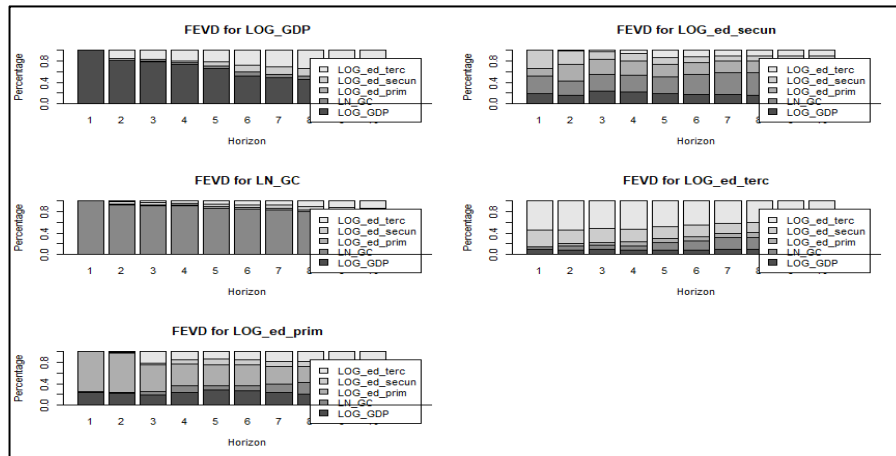
Using the impulse response function, it can be observed whether a shock in one variable has permanent or transitory effects in another, in this sense it is observed that third level education has an initial negative effect on economic activity in the first two periods, however, from the third period its effect becomes positive and is maintained throughout the period (see Figure 2). While in the variance decomposition analysis it indicates that with the passing of the periods, higher education begins to explain a greater proportion of the variability of economic activity (see figure 3).

Figure 2. Impulse-response third level education-GDP



Note. Source: Own Elaboration

Figure 3 Variance decomposition



Note. Source: Own Elaboration

The educational reality of Ecuador has had substantial changes throughout its existence. Since 2011, the Ministry of Education has played a leading role in its transformation, since the use of quality standards was applied, adjusting from Basic General Education to High School, and the implementation of the Ser Bachiller Exam, which All students must take it in order to graduate. According to the university field, evaluation processes have been carried out to categorize higher education institutions, the same ones that have been forced every two years to meet quality standards. All oriented so that students have relevant skills for their development and social inclusion.

However, although third level education in Ecuador has been accompanied by an effort towards financing both at the public and private levels, this educational stratum has historically faced significant levels of restriction in terms of spending dedicated to this educational level., the limitations have generally been associated with the cyclical fluctuations of the Ecuadorian economy. In this aspect, it should not be forgotten that the university plays a

strategic role in the social fabric, thus, as one of the functions of universities in the new knowledge societies is associated with the contribution that these institutions have in social development., political and economic both nationally and locally through a set of innovations based on knowledge. The public university becomes a channel of entry for the middle and lower class that is not able to pay for private education at that level.

In the economic literature that analyzes the impact of the education sector on economic growth, approximate variables of human capital have been used: years of study, the number of people enrolled in school, the number of people with access to health care, and even the number of people who studied engineering or are dedicated to research related to innovation and technological development. Empirical studies regarding the capacity of higher education as a formative element of human capital and generator of economic growth, has been little studied in terms of the intermediate process of human capital formation.

In the case of Ecuador, the study of the relationship between tertiary education and economic activity is quite scarce, this research seeks to contribute to the analysis of this relationship. In this sense, it is found that when estimating the long-term coefficients, the results suggest that the coefficients that measure the long-term elasticity of GDP with respect to enrollment in primary and higher education have a difference in magnitude, since an increase in 1% primary enrollment is associated with a 0.30% increase in economic activity, while a 1% increase in primary enrollment is associated with a 0.02318%% increase in economic activity. This result suggests that in the long term primary education and higher education do not share a similar contribution to economic activity, and therefore do not share a similar gross social return, this can be explained by the greater allocation of public

resources to education. In this sense, the higher education system seems to have a relative efficiency in the use of resources to satisfy the educational demand that corresponds to it, although they are insufficient. However, regarding enrollment in secondary education, the estimates seem to reflect a certain deficiency in the functioning of these educational systems, which seems to reflect some degree of inefficiency in the application of public resources that may be associated with a probable insufficiency of these. It should be noted that, both in the case of higher education and secondary education, although enrollment in these segments has increased, the proportion of those enrolled with respect to those who could potentially enter, that is, enrollment in the educational segment immediately above is relatively low as the educational level progresses. The expectations of educational improvement and economic well-being of those enrolled in these levels seem to be unflattering, which seems to influence economic activity. The results suggest that it is in these educational segments where it is necessary to reinforce the educational improvement policy. The results obtained in this document, although it shows the importance in the long term of higher education, also shows a lack in the integration of scientific research from universities in the reality of companies and in Ecuadorian society, since the coefficients turn out to be relatively low.

The general objective of this work focuses on analyzing the effect of higher education on economic activity in Ecuador from 1990-2020, this is achieved through the empirical analysis of the incidence of the different levels of education on the economic growth of a country. in the short and in the long term. It is observed that in the present regression, the existence of an apparent dilemma indicated between the different levels of studies with respect to the delivery of resources to primary education and secondary education, while with third level education and primary

education This type of dilemma is not observed, this fact is perhaps related to the fact that high levels of people who at least finish primary education is related to the achievement of one of the great millennium goals is related to the reduction of the levels of illiteracy.

The regression seems to indicate that in the short term, higher education reduced economic activity, which starts out being negative and becomes positive as the periods go by, this is confirmed in the long term, since its impact is positive, which indicates that even if the resources allocated to higher education are insufficient, it seems that the higher education system is relatively more efficient in the application of spending dedicated to this stratum. It should be noted, the existence of an inter-temporal complementarity between the various levels of education, which means that any social or economic policy shock that seeks to influence in terms of an improvement in the quality of the stratum of an educational level will necessarily influence the education enrollment of the rest of the levels, this implies that the lower impact of higher education refers to the fact that the policy measures carried out with the purpose of benefiting primary or secondary education must be applied in such a way that they ensure transmission channels that translate into better results in the quality of the following educational levels.

In the case of the Ecuadorian economy, it is required to maintain a comprehensive educational policy of equity, coverage and especially quality that integrates the third level of education and the intermediate segments into its structure so that there can be a real effect of knowledge in education. economic activity, for this a scaffolding is required that establishes the university as a center that maintains research and development (R&D) activities applying academic principles, a business and industrial network that provides potential knowledge seekers based on its commercial activities, as

well as promoters of research and development (R&D) activities that create new business opportunities, and the government as the element that generates the conditions, policies and regulatory framework necessary to generate an environment of progress in the economy. In general terms, although universities play a key role in the innovative process, in the case of Ecuador their role seems to be scarce and ineffective to face the challenges of today's globalized society, in this regard, universities do not have sufficient infrastructure installed, human resources or strong links with the productive sector. In this regard, government institutions capable of creating researchers and monitoring the process of linking universities and companies are required.

References

- Arias, L., Portilla, L., y Fernández, S. (2012). Vinculación universidad empresa como formador de capital humano para la competitividad e impacto social. *Scientia et Technica*, 17(52), 59-64. <https://doi.org/10.22517/23447214.7145>
- Barreno, M., Barreno , Z., y Olmedo, A. (2018). La educación superior y su vinculación con la sociedad: referentes esenciales para un cambio. *Revista Científica de la Universidad de Cienfuegos*, 10(3), 40-45.
- Barro, R., y Sala-i-Martin, X. (1995). *Economic Growth*. McGraw-Hill.
- Becker, G. (1964). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. University Of Chicago Press.
- Bertero, E., Donnet, C., Etcheverria, J., Gianotti , N., y Zanichelli, M. (2014). *La Universidad y su vinculación con el entorno*

socioproductivo. Universidad Nacional del Litoral, Secretaría de Vinculación Tecnológica y Desarrollo Productivo.

Comisión de vinculación con la sociedad. (2021). *Modelo de vinculación con la sociedad de la Universidad de Otavalo*. Universidad de Otavalo.

Cuentas, S. (2018). La gestión del capital humano en una unidad académica de educación superior. *Educación*, 27(53), 57-72. <https://doi.org/10.18800/educacion.201802.004>

De Soysa, I., y O Neal, J. (1999). Boon or Bone? Reassessing the Productivity of Foreign Direct Investment. *American Sociological Review*, 64(5), 766-782. <https://doi.org/10.2307/2657375>

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., y Trow, M. (1997). *La nueva producción del conocimiento: La dinámica de la ciencia y la investigación en las sociedades contemporáneas*. Ediciones Pomares-Corredor, S. A. .

Kämpf, S., & Weede, E. (2002). The Impact of Intelligence and Institutional Improvements On Economic Growth. *KYKLOS*, 55(3), 361-380. <https://doi.org/10.1111/1467-6435.00191>

Kenney, M., Mustard, P., Siegel, D., Wright, M., y Autio, E. (2014). Entrepreneurial innovation: The importance of context. *Research Policy*, 43(7), 1097-1108. <https://doi.org/10.1016/j.respol.2014.01.015>

Medina, F., & Galván, M. (2007). Imputación de datos: teoría y práctica. Santiago de Chile: CEPAL - Serie Estudios estadísticos y prospectivos No 54.

- Mincer, J. (1958). Investment in human capital and personal income distribution. *The Journal of Political Economy*, 66 (4), 281-302.
- Mungaray, A., y Torres, V. (2010). Actividad Económica y Educación Superior en México. *Revista de la Educación Superior*, 39 (4), 7-18.
- Pedraza , N. (2021). Satisfacción laboral y compromiso organizacional del capital humano en el desempeño en instituciones de educación superior. *Revista Iberoamericana para la Investigación y el Desarrollo educativo*, 10(20). <https://doi.org/10.23913/ride.v10i20.595>
- Pitlik, H. (2002). The Path of Liberalization and Economic Growth. *Kyklos*, 55, 57–80. <https://doi.org/10.1111/1467-6435.00177>
- Rios, J., Castillo, M., y Alonso, R. (2017). Efectos de la capacidad de absorción tecnológica en el crecimiento económico. *Revista CTS*, 12(34), 197-222.
- Schultz, T. (1959). Investment in Man: An Economist's View. *The University of Chicago Press*, 33(2), 109-117.
- Vázquez, A. (2005). *Las nuevas fuerzas del desarrollo*. Antoni Bosch Editor.
- Vera , F. (2016). Infusión de habilidades blandas en el currículo de la educación superior: clave para el desarrollo de capital humano avanzado. *AKADEMEIA*, 7(1), 53-73.

Energy Sector Case: Chile, Brazil and Colombia Financial Performance and Capital Structure

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Introduction

The company financial structure and its operation performance, registered on capital markets, are important factors and also to apply a business model focusing on investment performance. (Baulmon, 1994) suggests that the importance of free enterprise in society provides incentives to optimize business resources by focusing on economic changes that are reflected in institutions. The manager in the organization achieves success through a business model with stable planning strategies associated with financial performance and profitable business strategies. Stable business models maximize the potential and value of the exchanges. (Huelsbeck, Merchant, & Sandino, 2011)

The publications importance regarding to the capital market begins with the of Ball and Brown (1968) study, it reveals the importance of the variable's analysis; in this sense the synergy of accounting

information data related to the profitability and leverage (Giner, Reverte, & Arce, 2002), which reflect the behavior associated with efficiency in the capital market. However, responsible companies will report financial and non-financial information contributing to the socio-economic and global context.

This study motivation was to explore how the financial leverage influences profitability. Analyze the causal relationship between the financial leverage on the profitability of 31 listed Latin American companies, whose activity is energy supplying; analyzed according to (Dalci, 2018) methodology. The analyzed sample corresponds to companies located in Chile, Colombia and Brazil, the annual financial information from 2014 to 2017 using the Orbis database. This study initially, used a simultaneous equation approach, panel data regression analysis, using OLS methods, with random effects, excluding further analysis by (Arellano & Bond, 1991).

Theoretical framework and hypothesis

(CEPAL, 2010) expressed, "it is necessary to design a financial system that contributes to reduce the great heterogeneity of the region economy" in Latin America. The concentration of the capital market is grouped around more economically developed countries, however, countries with developing economies such as Brazil, Chile and Colombia contribute to the region economy due to the increase in investment motivated by globalization and opening of markets.

Capital structure is defined as: "The amount of permanent short-term debt, long-term debt, preferred and common stock used to finance a company's operations. In contrast, financial structure refers to the amount of total current liabilities, long-term debt, preferred and common stock that are used to finance the

company's operations. Therefore, the capital structure is part of the financial structure and represents the permanent sources of financing for a company" (Moyer, Mcguigan, Kretlow, 2005, p.413)

The existent differences between companies when making the decision to acquire a debt are diverse, (Modigliani, F., Miller, 1958) and (Miller, 1977) in their investigations explain that companies satisfy the demand for capital to finance their investments, for example; the models that indicate the financial hierarchy (Pecking order) and the objective leverage (Trade Off) predicting that companies control their debt according to an optimal leverage ratio, established by each company. However, some empirical studies do not reflect that leveraging the company financially influences performance.

Another benefit derived from financing through debt is proposed by (Grossman & Hart, 1982) who argued that bankruptcy is very costly for managers since they lose the benefits of control, their reputation and in many cases, even their employment.

(Jensen, 1986) argues that high indebtedness adds value to the company, by generating higher cash flows. Managers may invest excess cash flow for personal benefit or superfluous assets. Therefore, in order to control this behavior, companies issue debt as a disciplinary mechanism, reduce the discretion of directors or agency problems or entrenchment of CEOs through the payment of interest, and restricting high-risk investments.

According to capital structure theories, it can be stated that financial leverage influences profitability due to the tax effect, agency costs, financial difficulties, bankruptcy costs and information asymmetry. (Modigliani, F., Miller, 1958), (Scott, 1977), (Jensen & Meckling, 1976), (Majluf, Nicholas S, 1984), (Myers, 2001).

Capital structure theory and its link to compensation, hierarchy, and agency cost theories suggest that financial leverage can have a positive or negative impact on profitability. (Dalci, 2018). In studies carried out in developed countries such as the USA, France, Belgium, Italy, Germany, Norway and Sweden, the results imply differences in the relationship between leverage and profitability.

Leveraging is traditionally the result of financing (Nissim & Penman, 2003) there are various types of relevant valuations, studies link leverage and differences in shareholder profitability, if the resources used by the company were its own, there would be no financial costs.

Liquidity is a factor that the company considers decisive, optimizing benefits when investing supposes differential flows in which the applied decision models and the reduction of risk in shareholders' capital return in opportunities that increase investment. (Raján, 2006).

In developing countries, financial leverage usually has a negative impact on performance and little evidence of a positive influence on profitability. (Dalci, 2018). There are few relevant studies regarding developing countries in Latin America, such as: Mexico, Brazil, Chile, Peru, however, Colombia appeared in the last decade due to the investments promoted by free trade agreements, they differ in their results. Due to macroeconomic and external aspects, it could not be generalized that a measure of financial leverage is positively or negatively associated with profitability.

There are different studies that positively and negatively relate the relationship between performance and leverage, however, most of the research regarding capital structure, and the aforementioned

relationship, the authors present empirical evidence according to (Bae, Kim, & Oh, 2017), in Table No. 1:

Table 1. *Table based on the inconclusive relationship between the leverage of the company and the financial performance of the company.*

Relation	Study	Recommendations	Method	Variables
				Performance or capital structure
Positivo	(Jensen, 1986)	"Debt could increase free cash flow allocation efficiency." Therefore, the higher the debt, the higher the valuation of the company.	Theoretical Model	organizational efficiency
	(Alan, Kraus ; Robert H ., 1973)	Debt is beneficial because it can shield profits from corporate income taxes.	Theoretical Model	The states in which the company will receive the tax savings attributable to the debt financing. V: Total market value of a company
	(McConnell; Servaes, 1990)	Consistent with the tax argument (Modigliani, F., Miller, 1958), the leverage-signaling argument, and the free cash flow argument (Jensen, 1986), the authors find a positive relationship between debt and firm valuation. .	Empirical analysis (regresión)	Company valuation (Tobin's Q). Financial leverage (market value of debt / replacement value of assets)
	(Titman; Opler, 1994)	"Highly leveraged companies lose substantial market share to their more conservatively	Empirical tests (OLS regression)	Financial performance: sales growth and equity return leverage: debt/asset

	financed competitors in industry crises"			
	(Goddard, Tavakoli, & Wilson, 2005)	The authors examine the determinants of profitability for manufacturing and service firms in Belgium, France, Italy, and the United Kingdom. The result shows that there is a negative relationship between the financial leverage of the company and profitability.	Empirical analysis (the generalized systemic method of moments).	Profitability (ROA) financial leverage (non-current liabilities + loans / shareholder funds)
	(Yazdanfar & Öhman, 2015)	The authors examine the relationship between the level of debt and the performance of small and medium-sized enterprises (SMEs) and confirm that both short- and long-term debt is negatively associated with firm profitability.	The authors examine the relationship between the level of debt and the performance of small and medium-sized enterprises (SMEs) and confirm that both short- and long-term debt is negatively associated with firm profitability.	Company profitability: ROA (company book value of net profit after taxes / total assets) Debt: ratio between trade credit (accounts payable) and total assets, short-term debt (total debt repayable in one year / total assets), and long-term term debt (total debt repayable after one year / total assets)
	(Harris & Raviv, 1991)	This paper discusses capital structure theories based on agency costs, asymmetric information, output/input interactions in the market, and corporate control considerations. The results show a mixed relationship	Paper survey	Benefit of Debt: Management Ownership, Free Cash, Investors Option to Liquidate Cost of debt: asset replacement, unspecified research costs, underinvestment
Mixto				

	between debt and the financial performance of the company.		
(Myers, 2001)	There is no universal theory regarding debt-equity choice (eg, concessions theory, pecking order theory, free cash flow theory)	Document revision	Benefit of debt: tax benefit, cost of debt: information and agency costs
(de Mesquita & Lara, 2003)	The authors find that long-term debt is negatively associated with firm profitability, while short-term debt is positively associated with firm profitability.	Empirical analysis (OLS regression)	Company profitability (the rate of equity capital over the rate of return, ROE) Leverage: long-term debt (long-term debt / total liabilities), short-term debt (short-term debt / total liabilities)
(Campello, 2006)	"The debt can increase and harm the performance of the company." The authors show a "non-monotonic" relationship between firm debt and financial performance.	Theoretical model and empirical analysis.	Product Market Performance: Company Sales Growth Relative to Industry Leverage: long-term debt / total assets
(Weill, 2008)	The author examines the effect of financial leverage on performance in seven European countries. The results show that financial leverage has a positive impact on the performance of companies in Spain and Italy, while it has a	Empirical analysis (maximum likelihood estimation)	Firm performance (cost efficiency, measured by the stochastic frontier approach) Financial leverage (total liabilities / total assets)

negative impact
on the
performance of
companies in
Germany, France,
Belgium and
Norway.

Previous studies identify the performance importance and leverage analysis converge in fields of economic knowledge, management, accounting and finance, however, there are few case studies in Latin American countries. Therefore, according to the literature review, it presents a double leverage-return ratio, the following hypothesis is formulated for the purposes of this study:

Study hypothesis: There is a non-linear inverted U-shaped relationship between financial leverage and profitability of companies in the electricity sector listed in Brazil, Colombia and Chile.

For the initial sample, 74 companies with 296 observations were obtained. Of these 74 companies, 43 companies were eliminated, which had large gaps in their financial information, in order to guarantee a strongly balanced panel and to have the greatest precision in the estimates. From these 31 companies with 93 observations, the following variables were constructed, measured in thousands of dollars for three years, since the growth variable did not allow working for four years.

The variables in this study, the panel data methodology is used due to its advantages. The panel data method can control for heterogeneity by: 1. Eliminating or reducing estimation bias and potential multicollinearity problems in the data; 2. Provide efficient information; 3. Controls for unobservable effects; 4. It is technically efficient.

But despite the advantages of the previous studies on which this model is based on, panel data with long periods of time should be analyzed, that is, autocorrelation, which would be a limitation for our analyzed sample. Therefore, in this study, the Granger causality test is applied to see whether or not there is a reverse causality between profitability and leverage. Next, based on the results of the causality test, the simultaneous equation approach using three-stage least squares (3-SLS) is applied to address the endogeneity problem. The 3-SLS method estimates all the equations at the same time and provides the estimated parameters of all the equations. The 3-SLS method also considers the correlation between the error terms in different equations. In this sense, a two-equation model with leverage and profitability as dependent variables is developed to analyze the causal relationship between the two variables. The simultaneous equations model is as follows:

$$PROFITABILITY_{i,t} = \alpha + \alpha_1 LEVERAGE_{i,t} + \alpha_2 CONTROLS_{i,t} + \varepsilon_{it}$$

$$LEVERAGE_{i,t} = \beta + \beta_1 PROFITABILITY_{i,t} + \beta_2 CONTROLS_{i,t} + \varepsilon_{it}$$

In the first model given above, considering profitability as the dependent variable, the 3-SLS method is applied for ROA and ROE separately. The relationship between profitability (ROA and ROE) and leverage is investigated using two leverage variables (STDR and TDR) and their squares (STDR 2 and TDR 2) as independent variables to explore the inverted U-shaped relationship. In the second model, leverage is used as the dependent endogenous variable and is measured by two different measures, STDR the equations refer to: 1. Working capital, firm size, sales growth, annual GDP growth rate, annual inflation rate as control variables due to presumed influence on profitability and 2. Use the variables above described because they can influence financial leverage and TDR.

In the first equation; Working capital, company size, growth. After applying the 3-SLS method, used by (Dalci, 2018) with four different panel data techniques to increase the consistency and efficiency of the results. In this sense, the pooled OLS method is initially used. Then, the fixed and random effects methods are applied. After obtaining the results of OLS, fixed effects and random effects, the F test is performed to choose between the fixed effects and the OLS. Next, the (Hausman, 1978) test is performed the first difference method assumes that the existence of differences is the constant term and in this method the changes in the dependent variable are recorded in the changes in the independent variables. According to (Wooldridge, 2002), the results of the first difference and the fixed effects must be reported together to eliminate the problem of serial correlation. to decide whether the fixed or random effects method is better.

In this study, the Generalized Method of Moments (GMM) approach of (Arellano & Bond, 1991) with lagged variables is also used to address a potential problem of endogeneity and multicollinearity of the study variables. As a consequence, the following models are described for the panel data methods used in this study:

OLS model:

$$PER_{i,t} = \alpha + \beta_1 STD_{Ri,t} + \beta_2 STDR_{2i,t} + \beta_3 NTC_{i,t} + \beta_4 GDP_{i,t} + \beta_5 INF_{i,t} + \beta_6 GROW_{i,t} + \beta_7 LTA_{i,t} + \mu_{it} \quad \mu_{it}$$

$PER_{i,t} = \alpha + \beta_1 STD_{Ri,t} + \beta_2 STDR_{2i,t} + \beta_3 NTC_{i,t} + \beta_4 GDP_{i,t} + \beta_5 INF_{i,t} + \beta_6 GROW_{i,t} + \beta_7 LTA_{i,t}$ In the current study, financial leverage is used as the independent variable. Short-term debt makes up a large part of total debt, while long-term debt is the lowest in listed firms in some of the cited studies. It is possible to measure the capital structure by book value or market value. However, it is not easy to calculate market leverage ratios for the listed companies in

the sample because companies listed on multiple markets hold multiple types of shares simultaneously. Return on assets (ROA) and return on equity (ROE) are used as the dependent variable of the analysis, in addition to company-specific variables such as working capital management, size, sales growth, annual rate of GDP and the annual inflation rate as control variables to control the possible impacts, table No. 2 shows the variables used in the research, according to those used by (Dalci, 2018) on which we base our study and from which We take all the variables:

Table 2. Study variables

Variables	Measures	References
POR	Return on assets (ROA): Net income divided by total assets Return on equity (ROE): Net income divided by total assets	(Zeitun & Tian, 2014), (Ruan, Wenjuan, Tian, Gary dan Ma, 2011), (Dawar, 2014) ,(El-Sayed Ebaid, 2009) ,(Zhu & Jiao, 2013) , (Yazdanfar & Öhman, 2015), (Lin & Fu, 2017)
NTC	Net Trading Cycle: $[\text{inventory/sales}] \times 365 + [\text{accounts receivable/sales}] \times 365 - [\text{accounts payable/sales}] \times 365$	(Baños-Caballero, García-Teruel, & Martínez-Solano, 2014), (Hyun-Han Shin & Soenen, 1998)
LTA	Natural logarithm of total assets	(Su, 2010), (Ruan, Wenjuan, Tian, Gary dan Ma, 2011), (Zhengwei, 2013), (Zhang & Liu, 2017)
GROW	Sales amount difference from the previous year divided by the sales of the previous year	(He, Mukherjee, & Kent Baker, 2017)
STDR TDR	Short-term debt divided by total assets Total debt divided by total assets	(Zhang & Liu, 2017),(Titman & Wessels, 1988) , (Abor, 2005),(Xu, Bhuiyan, & Rahman, 2016)

GDP	GDP difference from the previous year divided by the GDP of the previous year	(Mutua Mathuva, 2014),(Mun & Jang, 2015)
INF	Annual inflation rate	(Pattitoni, Petracci, & Spisni, 2014),(Rehman & Wang, 2015)

-PER: Represents profitability; NTC: Represents the working capital measured by the net trading cycle; GROW: Sales growth; LTA: The size of the company; STDR: The short-term debt ratio; TDR: The Total Debt Ratio; GDP: The growth rate of gross domestic product and INF: The annual inflation rate

-Profitability: Measures the profitability of companies. The paper uses two measures of return on assets (ROA), a variable which was constructed with the total value of annual net income divided by the total amount of annual assets and (ROE) Return on equity, a variable which was constructed with the total value of annual net worth divided by the total amount of annual assets. The data was obtained from the Orbis® platform.

Net Trading Cycle: Measures the working capital measured by the net trading cycle. The data for the construction of this variable was obtained from the Orbis® platform.

-Total Assets: (LTA) Incorporates the annual value of total assets through a transformation with Neperian logarithms.

-Growth: (GROW) Analyzes the percentage growth of net sales year after year. The data was obtained from the Orbis® platform. This variable caused that of the four years available, only three years could really be worked on.

-Short-Term Debt: (STDR) Analyzes the effect of annual short-term debt divided by total annual asset value. However, given the availability of data on the Orbis® platform, this variable had to be changed to debt for loans and other short-term debt variables.

-Total debt: (TDR) Which seeks to incorporate the effect of leverage into the analysis. This variable was constructed by taking the total value of the annual debt of each company and dividing it by the total value of annual assets. The data was obtained from the Orbis® platform.

-Total debt: (TDR) Which seeks to incorporate the effect of leverage into the analysis. This variable was constructed by taking the total value of the annual debt of each company and dividing it by the total value of annual assets. The data was obtained from the Orbis® platform.

-Inflation: (INF) It considers the general state of prices in the economy to establish a causal relationship between them and the levels of profitability and leverage. The inflation rates for Brazil and Chile were extracted from the World-Wide Inflation Data online database (<https://es.inflation.eu/tasas-de-inflacion/brasil/inflacion-historica/ipc-inflacion-brasil.aspx>) and (<https://es.inflation.eu/tasas-de-inflacion/chile/inflacion-historica/ipc-inflacion-chile.aspx>). Database that has the annual inflation data.

However, for Colombia, in the previous site and in general, the annual inflation data is not available, therefore, we worked with the variation series of the CPI (Consumer Price Index), available on the website of the Central Bank called Banco de la Republica (<http://www.banrep.gov.co/es/indice-precios-consumidor-ipc>) and proceeded to obtain a geometric mean of the annual variation of the CPI for 2015, 2016 and 2017 respectively.

Table 3. Descriptive Statistics

	NTC	GROW	LTA	TDR	STDR	INF	GDP	ROE	ROA
Media	122.4946	0.2409851	21.75132	0.650455	0.2317346	0.0582808	- 0.0042404	0.0764959	0.0390733
Standard deviation	46.30731	1.273487	1.419233	0.6455137	0.3330861	0.0263391	0.0259809	0.136269	0.1347036
Minimum	11.69686	- 0.6848477	18.15421	0.2485047	0.0039263	0.0219	- 0.0376926	- 0.7597634	- 0.9613344
Maximum	274.6412	9.473079	24.68073	6.205935	3.242889	0.0901	0.0305202	0.478999	0.6799

Correlations: In general, an inverse relationship is observed between profitability (ROA and ROE) and leverage (TDR and STDR). Matrix that tells me that there is a significant correlation between TDR and STDR of 0.8441, there is a very weak correlation between ROE and ROA of -0.1138

Table 4. Correlation Table

Variables	NTC	GROW	LTA	TDR	STDR	INF	GDP	ROE	ROA
NTC	1								
GROW	-0.3296	1							
LTA	0.3541	-0.1284	1						

TDR	-0.1047	0.0787	-0.1739	1					
STDR	0.0124	-0.1174	-0.1215	0.8441	1				
INF	-0.2335	0.1488	-0.0813	0.1447	0.1622	1			
GDP	0.2412	-0.1316	-0.0168	-0.1813	-0.1554	-0.8777	1		
ROE	0.0109	-0.2652	-0.0740	-0.1417	0.0515	-0.0884	0.0993	1	
ROA	-0.1868	0.5546	0.0046	-0.6218	-0.8133	-0.0529	0.0660	-0.1138	1

Granger Causation Test: Previous studies indicate that leverage affects profitability, a Granger causality test is applied to verify the existence of an inverse causality between profitability and leverage.

Table 5. Results Granger causality test

Hipótesis Nula	Chi-Cuadrado
ROA does not Granger Cause TDR	36.178***
TDR does not Granger Cause ROA	42.01***
ROE does not Granger Cause TDR	63,418***
TDR does not Granger Cause ROE	50,764 ***
ROA does not Granger Cause STDR	48,525***
STDR does not Granger Cause ROA	1.1657

ROE does not Granger Cause STDR	77,95***
STDR does not Granger Cause ROE	0.03415

The Granger test was carried out with a Chi-Square statistic program, compared to the F statistic. Is required is to verify the double causality between the profitability variables and the leverage variables. We note that short-term debt is not a likely cause of the profitability variables (ROA and ROE), therefore estimating profitability in terms of these short-term costs will have no effect. This is due to the fact that the market is inelastic with respect to others, in the same way, since these goods are widely used by society, it is less likely that these goods and services will not be purchased during recessive quarters.

Carrying out the least square's statistical method in three stages, we found that the estimators reflected a low level to explain the incidence of leverage and performance, finding only the variable grow and Ita with the best estimates to explain this model.

Table 6. Least Squares in three stages.

	ROA	ROA	ROE	ROE	TDR	TDR	STDR	STDR
GDP	0.4681 (0.3529)	0.2862(0.3945)	0.9917(1.0156)	0.2670(0.9187)	-0.2159(3.0637)	-1.739(5.0196)	1.4287(1.1142)	-0.0521(2.5617)
INF	0.4702(0.3429)	0.0542(0.3807)	0.607(0.99305)	0.1667(0.8847)	-0.5457(2.960819)	2.3024(4.8372)	1.5323(1.0768)	0,2694(2.4685)
GROW	0.0483(0.0039)***	0.0574(0.0044)***	-0.0319(0.01146)**	-0.0153(0.0104)	0.3532(0.03960)***	0.0005(0.0571)	0.1420(0.0139)***	-0.0285(0.0291)
LTA	0.0038(0.0011)***	0.0036(0.0014)*	0.0051(0.00330)	0.0138(0.0034)***	0.0450(0.0097)***	0.0297(0.0159)	0.0120(0.0035)***	0.0009(0.0081)
NTC	-0.0001 (0.0001)	-0.0002(0.0001)	-0.0002(0.0003)	-0.0002(0.0002)	-0.0014(0.001)	-0.0006(0.0016)	-0.0002(0.0003)	0.0003(0.0008)
STDR	-0.2920 (0.0292)***		-0.1785(0.1561)					
STDR2	-0.0116(0.0089)		0.0669(0.04750)					
TDR		-0.0063(0.0250)		-0.3722(0.0714)***				
TDR2		-0.0249(0.0041)***		0.0560(0.0115)***				
ROA					-5.4895(0.3493)***		-2.9827(0.1124)***	
ROE						-0.8953(0.5030)		0.2086(0.2573)
R-cuadro	0.8847	0.8476	0.3134	0.4446	0.8087	0.5149	0.3575	0.3575

Longitudinal Analysis:

It introduces a data panel analysis to explain the relationships between profitability and leverage over time, which are shown in tables seven and eight, which show the statistical results of the longitudinal analysis.

Table 7. Longitudinal Analysis Short-term debt

	MCO	First differences	Fine effects	Random effects	GMM
Panel A: Dependent variable ROA					
GDP	0.0308(0.3952)	0.6822(0.7656)	-0.0496(0.5660)	0.0872(0.4122)	0.4927(0.5515)
INF	-0.1094(0.3903)	0.7735(0.8960)	0.1329(0.4460)	0.0391(0.3768)	0.2046(0.4130)
GROW	0.0508(0.0040)***	0.0449(0.0048)***	0.0418(0.0045)***	0.0474(0.0037)***	0.0328(0.0459)
LTA	-0.0055(0.0038)	-0.0116(0.0326)	0.0171(0.0270)	-0.0072(0.0047)	-0.0382(0.0459)
NTC	-0.0001(0.0001)	0.00003(0.0001)	0.00003(0.0001)	-0.0005(0.0001)	0.0003(0.0003)
STDR	-0.0998(0.0557)*	0.0483(0.0906)	0.0508(0.0914)	-0.0796(0.0612)	0.2508(0.3532)
STDR2	-0.0661(0.0171)***	-0.1306(0.0279)***	-0.1240(0.0278)***	-0.0778(0.0188)***	-0.5488(0.7163)
F-test	F(30, 55) = 2.910***				
LM (Chi2)	6.16***				
Hausman (Chi2)	24.01***				
Valor F	103.51***	166.94***	162.87***		
R Cuadrado	0.8950	0.9618	0.7484	0.3446	
Wald Chi2				1039.78***	11.78
Panel B: Dependent variable ROE					
GDP	0.5568(1.1677)	-0.2153(1.9222)	0.7453(1.4619)	0.6863(1.1789)	0.6238(0.6956)
INF	0.2035(1.1531)	-3.0887(2.2495)	-0.5715(1.1520)	0.0462(1.0871)	-0.9690(1.4556)
GROW	-0.0329(0.0119)***	-0.0295(0.0121)*	-0.0245(0.0116)**	-0.0293(0.0107)***	-0.0019(0.0015)
LTA	-0.0043(0.0113)	0.0110(0.0818)	-0.0025(0.0699)	0.0016(0.0132)	-0.5246(0.4040)
NTC	-0.0001(0.0003)	-0.0025(0.0004)***	-0.0015(0.0004)***	-0.0005(0.0003)	-0.0203(0.0469)
STDR	-0.1740(0.1645)	-0.0915(0.2275)	-0.1791(0.2361)	-0.1338(0.1740)	0.0614(1.0541)

STDR2		0.0582(0.0505)	0.1146(0.0701)	0.1137(0.0720)	0.0675(0.0536)	-1.8599(1.8937)
F-test	F(30, 55) = 4.375***					
LM (Chi2)	9.95***					
Hausman (Chi2)	83.59					
Valor F		1.42	12.12***	6.52***		
R Cuadrado		0.1045	0.6465	0.7021	0.2986	
Wald Chi2					17.14	12.03

Table 8. Longitudinal Analysis Short-term debt

	MCO	Primeras Diferencias	Efectos Fijos	Efectos Aleatorios	GMM
Panel A: Variable Dependiente ROA					
GDP	0.0374(0.4395)	0.6288(0.6300)	0.0277(0.4790)	0.1081(0.4365)	2.6712(1.7205)
INF	-0.3156(0.4259)	0.3791(0.7399)	0.0387(0.3742)	-0.0765(0.3851)	0.7750(0.5824)
GROW	0.0519(0.0045)***	0.0351(0.0042)***	0.0335(0.0041)***	0.0453(0.0038)***	0.1244(0.0929)
LTA	-0.0098(0.0041)**	-0.0197(0.0264)	0.0101(0.0224)	-0.0122(0.0053)	-0.2823(0.1858)
NTC	-0.0001(0.0001)	-0.0001(0.0001)	-0.0005(0.0001)	-0.0001(0.0001)	-0.0014(0.0010)
TDR	0.1160(0.0311)***	-0.3580(0.1201)***	-0.2776(0.1182)**	0.1443(0.0347)***	2.5278(1.8845)
TDR2	-0.0430(0.0050)***	0.0068(0.0145)	-0.0019(0.0140)	-0.0495(0.0049)***	-2.2678(1.6034)
F-test	F(30, 55) = 5.761***				
LM (Chi2)	11.74***				

Hausman (Chi2)	26.59***				
Value F	82.83***	242.45***	216.59***		
R squared	0.8721	0.9734	0.9456	0.4531	
Wald Chi2				1032.59***	9.73
Panel B: Variable dependiente ROE					
GDP	-0.3752(1.0454)	-0.4529(1.5575)	0.1523(1.2020)	0.1656(1.1051)	0.9941(0.7674)
INF	-0.5428(1.0130)	-2.5491(1.8294)	-0.6596(0.9390)	-0.5346(0.9763)	-0.0052(0.5802)
GROW	-0.0164(0.0107)	-0.0110(0.0104)	-0.0079(0.0104)	-0.0220(0.0096)**	0.0571(0.0569)
LTA	-0.0008(0.0099)	0.0519(0.0653)	0.0391(0.0562)	0.0062(0.0135)	-0.1454(0.1334)
NTC	-0.0001(0.0003)	-0.0021(0.0003)***	-0.0014(0.0003)***	-0.0007(0.0003)**	-0.0003(0.0007)
TDR	-0.3657(0.0739)***	1.3117(0.2969)***	1.2692(0.2967)***	-0.3278(0.0875)***	-0.4713(0.7650)
TDR2	0.0564(0.0119)***	-0.1298(0.0360)***	-0.1297(0.0351)***	0.0543(0.0124)***	0.5778(0.5336)
F-test	F(30, 55) = 4.991***				
LM (Chi2)	5.49***				
Hausman (Chi2)	91.89***				
F-value	5.04***	21.11***	12.17***		
R squared	0.2933	0.7611	0.9677	0.4454	
Wald Chi2				37.86***	12.48

This result is consistent with the economic theory since it classifies the energy industries with increasing returns to scale, for having these returns the investment costs are quite high, therefore, these types of industries end up in oligopoly schemes, which, in Many times, for Latin American nations like the ones studied, they are in the hands of local governments.

This cost structure, with this management structure, could explain the relationship between profitability and leverage where the rates charged by this type of industry remain constant throughout the year, maintenance costs are relatively constant, compared to manufacturing industries. Chinese where price and economic cycle phenomena can speed up or slow down income generation in a more volatile way.

The optimal capital structure can be characterized by different preferences of its managers (Wong, 2015) who manage corporate governance.

The hypothesis that there is a non-linear inverted U-shaped relationship between financial leverage and profitability of companies in the electricity sector listed in Brazil, Colombia and Chile, proposed in this model, is rejected, because its estimators and statistical tests they are not robust enough to be able to explain it.

Regarding the GDP, we can observe that the models are not significant in explaining profitability, this implies that the activity of this type of industry is not affected for the most part by changes in the economic cycle given the low elasticity, especially in the sector. energetic.

Regarding inflation, prices do not help to explain the behavior of profitability either because in most industries the charge is

maintained for a rate that remains relatively constant over time, it will depend on the rates charged, which on several occasions it comes to depend on the governments that are the ones that administer these industries.

References

- Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *Journal of Risk Finance*, 6(5), 438–445. <https://doi.org/10.1108/15265940510633505>
- Baños-Caballero, S., García-Teruel, P. J., & Martínez-Solano, P. (2014). Working capital management, corporate performance, and financial constraints. *Journal of Business Research*, 67(3), 332–338. <https://doi.org/10.1016/j.jbusres.2013.01.016>
- Dawar, V. (2014). Agency theory, capital structure and firm performance: some Indian evidence. *Managerial Finance*, 40(12), 1190–1206. <https://doi.org/10.1108/MF-10-2013-0275>
- El-Sayed Ebaid, I. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *Journal of Risk Finance*, 10(5), 477–487. <https://doi.org/10.1108/15265940911001385>
- He, W., Mukherjee, T. K., & Kent Baker, H. (2017). The effect of the split share structure reform on working capital management of Chinese companies. *Global Finance Journal*, 33, 27–37. <https://doi.org/10.1016/j.gfj.2017.02.003>
- Hyun-Han Shin, & Soenen, L. (1998). Efficiency of Working Capital Management and Corporate Profitability. *Financial Practice & Education*, 8(2), 37–45. Retrieved from

[http://search.ebscohost.com/login.aspx?direct=true&db=bth
&AN=1712459&site=ehost-live](http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=1712459&site=ehost-live)

- Lin, Y. R., & Fu, X. M. (2017). Does institutional ownership influence firm performance? Evidence from China. *International Review of Economics and Finance*, 49(January), 17–57. <https://doi.org/10.1016/j.iref.2017.01.021>
- Mun, S. G., & Jang, S. C. S. (2015). Working capital, cash holding, and profitability of restaurant firms. *International Journal of Hospitality Management*, 48, 1–11. <https://doi.org/10.1016/j.ijhm.2015.04.003>
- Mutua Mathuva, D. (2014). An empirical analysis of the determinants of the cash conversion cycle in Kenyan listed non-financial firms. *Journal of Accounting in Emerging Economies*, 4(2), 175–196. <https://doi.org/10.1108/jaee-10-2011-0045>
- Pattitoni, P., Petracci, B., & Spisni, M. (2014). Determinants of profitability in the EU-15 area. *Applied Financial Economics*, 24(11), 763–775. <https://doi.org/10.1080/09603107.2014.904488>
- Rehman, A. ur, & Wang, M. (2015). Corporate Cash Holdings and Adjustment Behaviour in Chinese Firms: An empirical Analysis Using Generalized Method of Moments. *Australasian Accounting, Business and Finance Journal*, 9(4), 20–37. <https://doi.org/10.14453/aabfj.v9i4.3>
- Ruan, Wenjuan, Tian, Gary dan Ma, S. (2011). Managerial Ownership and Firm Value : Evidence from China's Civilian-run Firms Managerial. *Australasian Accounting, Business and Finance Journal*, 5(3), 73–2.

- Su, L. D. (2010). Ownership structure, corporate diversification and capital structure: Evidence from China's publicly listed firms. *Management Decision*, 48(2), 314–339. <https://doi.org/10.1108/00251741011022644>
- Titman, R., & Wessels, S. (1988). American Finance Association The Determinants of Capital Structure Choice Author (s): Sheridan Titman and Roberto Wessels Source : The Journal of Finance , Vol . 43 , No . 1 (Mar . , 1988), pp . 1-19 Published by : Wiley for the American Finance Associ. *The Journal of Finance*, 43(1), 1–19.
- Wong, K. P. (2015). A regret theory of capital structure. *Finance Research Letters*, 12, 48–57. <https://doi.org/10.1016/j.frl.2014.12.001>
- Xu, B., Bhuiyan, M. B. U., & Rahman, A. (2016). Underlying profit in New Zealand. *Pacific Accounting Review*, 28(2), 111–134. <https://doi.org/10.1108/PAR-01-2016-0006>
- Yazdanfar, D., & Öhman, P. (2015). Debt financing and firm performance: an empirical study based on Swedish data. *Journal of Risk Finance*, 16(1), 102–118. <https://doi.org/10.1108/JRF-06-2014-0085>
- Zeitun, R., & Tian, G. G. (2014). Capital Structure and Corporate Performance: Evidence from Jordan. *SSRN Electronic Journal*, 1(4), 40–61. <https://doi.org/10.2139/ssrn.2496174>
- Zhang, D., & Liu, D. (2017). Determinants of the capital structure of Chinese non-listed enterprises: Is TFP efficient? *Economic Systems*, 41(2), 179–202. <https://doi.org/10.1016/j.ecosys.2016.12.003>

Zhengwei, W. (2013). Optimal capital structure: Case of SOE versus private listed corporation. *Chinese Management Studies*, 7(4), 604–616. <https://doi.org/10.1108/CMS-09-2013-0169>

Zhu, S., & Jiao, H. (2013). Organizational structure and corporate performance: Insights from 6,065 listed corporations. *Chinese Management Studies*, 7(4), 535–556. <https://doi.org/10.1108/CMS-09-2013-0174>

Influence on the classification of documents on the quality of archival organization

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Introduction

The documentation in the archives of public and private entities have an importance, as their facilities need to have their documentation well organized, which must respond to institutional needs, for this reason it is necessary to classify the information of periodic use, eventual, the so-called historical and that documentation that has lost its legal financial or statistical value.

According to (Castelao Caruana, 2016) The creation of a methodological guide to evaluate the conservation periods through valuation tables which will determine its importance of preservation or unsubscription, according to the definitive analysis that the documents and archives committee have decided, according to what established in letter g) of Art 40 of the Internal Regulations for the Administration, custody and conservation of archives of the Autonomous Decentralized Municipal Government of Guayaquil. (Quimbayo Ruiz et al., 2020) Expects to define and establish provisions related to the management, conservation and

custody of the documentation of the accounting area of the Municipality of Guayaquil, as well as its efficient response to queries that attest and support the monetary transactions that have been carried out in previous municipal administrations and that constitute its heritage. It is convenient, through research, to obtain different methods in order to update the handling of documents. It contributes to science, and to scientific study for an efficient organization in the archives. The highest authority shall implement and apply filing policies and procedures for the conservation and maintenance of physical and magnetic files, based on the current technical and legal provisions.

The issue of guaranteeing access to heritage must be oriented towards strengthening research networks, libraries, archives, museums and heritage sites at the national level and that these must operate through a memory and heritage subsystem through national institutions that guarantee their access and circulation. The purpose is to guarantee the protection, conservation, safeguarding and dissemination of heritage as a common good. It is necessary that the accounting units of public sector entities keep the financial records together with the corresponding supporting documents for seven years, in digital media with an electronic signature of responsibility and, if applicable, physical media. The right to higher education consists in the effective exercise of equal opportunities, based on the respective merits, in order to access academic and professional training with the production of relevant and quality knowledge. Requirements prior to obtaining the title. (Escamilla Solano et al., 2016) establishes as a prerequisite for obtaining the degree, the students must accredit services to the community through pre-professional internships or internships, duly monitored.

In the preparation of this project, the theses that remain in the library of the School of Library Science and Archives located on the

fourth floor of the DINASE building belonging to the Faculty of Philosophy of the University of Guayaquil were previously reviewed, where it was found that there is no investigation parallel or close to the proposal posed in the Central File of the Financial Directorate of the Municipality of Guayaquil of zone 8, district 3, province of Guayas, Guayaquil Canton, Olmedo Parish, period 2015.

For (Quiroga Baquero & Padilla Vargas, 2014) the origin of the archives dates back to the appearance of writing. The first files appear with the first empires. They were a tool to control population and wealth. Its study, analysis and documentation coincide in antiquity with the social organization of mankind. There is evidence of the existence of archives and organized collections from the monarchies that began in Asia to the Roman Empire, embracing also the Egyptian and Greek civilizations. The initial documents were legal documents (laws), documentation of control of people (registers), tax documentation (censuses, cadastres, land titles). There is also a lot of military documentation (registers of soldiers) and above all a lot of private documentation. The excavations of Tello Hariri, Ras-Neper, among others, have left evidence of the existence of archives in antiquity: royal, temple and even bank archives. The excavations at Ugarit are the only ones that have left evidence of the organization of the archives. Although we do not know the original classification and therefore the criteria used in it, the distribution of the documentation in the rooms is an example of the respect and conservation of the archives with a rigorous classification.

In total, about 400,000 clay tablets have been excavated. The Sumerians, the Arcadians and the Babylonians wrote on clay tablets of rectangular shape, rounded at the corners, the writing was done with a metal stylus, when the clay was soft. Cuneiform writing was used. They also wrote on wood, ivory and skins. The Scribes were a

ruling class who originally served the temples and were in charge of the archives and documents. Special deposits existed for the archives as independent niches, wooden boxes, straw baskets, vases or clay containers. They had to be adequately air-conditioned. The tablets were placed on the walls on asphalt-covered shelves. The documents were usually of restricted access. They could only be used by their producers and administration officials with prior authorization.

On January 17, 1884, during the government of José Plácido Caamaño, the National Archive was created, an institution under the Ministry of the Interior, which was created with the purpose of becoming the custodian of the Nation's Documentary Heritage and from there, the true custody of public documents began, and they were kept in good custody to later become a true historical legacy.

On January 14, 1938, the supreme government of General Alberto Henríquez Gallo, issued Supreme Decree No. 7 by which the National Archive was institutionalized, granting it the powers to guard and organize cultural manifestations.

In 1952, under the administration of the Casa de la Cultura, a contract was signed for the construction of a building that would meet the appropriate conditions to house the State's Documentary Heritage.

In 1982, the National Archives System Law was enacted in our country. The National Government, in its eagerness to conserve the historical and sociological sources of the country, as well as to modernize and technify the organization and administration of the archives, in Art. 20 granted the National Archives economic and administrative autonomy. In the first transitional provision of the law, the National Archive of History was given the status of National

Archive, with headquarters in Quito, separating it from the House of Ecuadorian Culture. In 1990, it became a reality when the budget for its operation was assigned, and the Financial Administrative Unit was created. Also noteworthy, are the obligations assumed by those who were responsible for the administration of public archives. Executive Decree No. 985, issued on January 13, 2011, reorganized the National System of Culture and the National Archives became part of the Ministry of Culture. On August 1, 2014, the archives of Ibero-America were united through a dissemination strategy, an idea that originated in Colombia, called "Sinergia ALA", to publicize its operation through the different tools of Social Media. The archives of Spain, Portugal, Brazil, Costa Rica, Chile, Cuba, Puerto Rico, Dominican Republic, Ecuador, Mexico, Paraguay, Uruguay, Venezuela and Colombia joined forces a year ago to develop a joint dissemination strategy to change the image of the archives and show the important work they do for history, transparency and the guarantee of rights.

In the beginning, the Accumulated Archives were organized by cleaning the documents, arranging them, storing them in units of adequate conservation, marking them and preparing document inventories, as well as placing them in adequate places for their conservation. Universidad de Colombia, 2008, p.11.

Various classifications have been applied from the beginning to the present day, although all of them must be considered in their historical, cultural, political and economic content, since the structures of each era have been requested to adapt to new classifications according to their reality. Thus, we observe that the classifications of knowledge do not reach those that do not manage to transfer the time-space coordinates, since they show the knowledge and values determined by each culture and each time.

Initially, the classification had a philosophical character, since it arose in the ancient age, when all knowledge was integrated into a common science: philosophy. Middle Ages. It is in the Renaissance period and with the taxonomy of Francis Bacon, that the classification arises. The value of a well-defined hierarchy, is that it reduces confusion as to who gives orders and who obeys them. It defines how tasks are formally divided, grouped and coordinated in jobs. Every organization has a structure, which can be formal or informal. The formal structure is the explicit structure officially recognized by the company.

The informal structure is the result of the management philosophy and the relative power of the individuals that make up the organization, not according to their location in the formal structure, but according to their influence on other members.

The organic criterion postulates that the documents produced by an institution or organization should not be mixed with others; that for purposes of preserving the historical memory of each organization or institution, the documents should be kept in the archival format of their origin. The physical installation or archiving of documents in the repository is the final step in the organization of an archive and consists of their physical location in a specific space. It is a task closely related to the organization of the collection and consists of the physical location of the files and documents, grouping them in boxes on the shelves to provide greater protection for the documents and resistance to dust, light, etc.

In order to proceed to their subsequent location, it is necessary to indicate the location of the file data by means of the file code or topographic code. For this reason, before placing a file in its corresponding box, it is necessary to identify it in order to know its

physical location in the archive and for this purpose it is given a code that refers to the box that contains it and its order within it.

The objective of the State Law of Documentation and Archives of Morelos is to establish the general criteria for the coordination, administration and archival conservation of all documentation in the possession of the subjects obligated by the Law of Public Information, Statistics and Protection of Personal Data of the State of Morelos; and to implement the instruments for the systematization of the management and historical archives. <http://www.imipe.org.mx>,2013.

Work specialization: or labor bisection is based on the fact that, instead of one individual carrying out all the work, it is divided into a certain number of steps and each individual completes one of the steps. Departmentalization: once the jobs have been divided by means of work specialization, it is necessary to group them so that common tasks can be organized. Departmentalization is the cause that consists of grouping tasks or functions in groups specialized in the performance of certain types of activities. It generally takes the form of management, departments, sections. The quality of an organizational structure depends very much on the type of departmentalization and the consequent delegation of functions and authority for their efficient development. Departmentalization implies the risk of having to achieve coordination between the defined units. It is the type of organizational structure that applies the functional principle or principle of specialization of functions for each task. The functional principle separates, distinguishes and specializes. This structure was consecrated by Taylor who, concerned about the difficulties produced by the excessive and varied volume of attributions given to production managers in the linear structure of an American steel mill, opted for functional supervision.

Physical installation.

The physical installation or filing of documents in the repository is the final step in the organization of an archive, and consists of their physical location in a specific space. It is a task closely related to the organization of the collection and consists of the physical location of the files and documents, grouping them in boxes on the shelves to offer greater protection to the documents and resistance to dust, light, etc. In order to proceed with their subsequent location, it is necessary to indicate the location of each file by means of the file code or topographic reference number. Therefore, before placing a file in its corresponding box, it is necessary to identify it in order to know its physical location in the archive and for this purpose it is given a code that refers to the box that contains it and its order within it.

An installation system

The continuous numbering system, is the most suitable for any growing archive, numbers the boxes by means of numbers from one onwards. This system establishes a clear dissociation between the classification of documents and their physical location. As they enter the archive, the boxes are numbered successively and placed on the shelves. In this way, maximum space savings is achieved and, in addition, the location of the installation units is quick, simple and with little chance of error. It allows efficient use of space, because when the archive is purged and documents are eliminated, the solution is to fill the gaps left by the new entries using the topographical symbols that have been vacated.

On the other hand, it is a system that can be somewhat inefficient in the case of a consulting firm, as the documentation relating to the same client can be scattered in numerous boxes, which can be

quite cumbersome when carrying out, for example, an accounting and tax closure or an audit of accounts. Moreover, this system requires a permanently updated inventory, otherwise documentary searches are fruitless.

A mixed system, combining the classification table and a numbering system based on the customer list. Each client is assigned a correlative code that will be used to number the boxes in the archive: the files, within these boxes, will be classified according to the classification chart and grouped using the sorting method that has been defined for each series. In this way, for each client, we will only have the entries in the table corresponding to the types of service provided. This method requires continuous control, which is not difficult to perform. As the documentation is almost always done in fixed periods, especially annually, and the documentation has a pre-established fiscal and legal value, when entering a file, the oldest one can be deleted. For example, in the case of tax documentation, when saving the corporate tax file for 1999, the file for 1995, which has already lost its tax value, can be deleted, provided that it has no informative value. In addition, this system of physical location in the archive of paper documents can be reflected in the computer system, oriented to the archiving of electronic documents or files.

"List and define the different types of archives, their uses and criteria for a rationalized management of the different places, depots or repositories of documents, both in traditional and electronic support" <http://www.santboi.cat/>, 2008

The protection and preservation of documentary, bibliographic and periodical heritage involves, among others, two major aspects: its physical control and its intellectual control. On the one hand, it is necessary to ensure the basic conditions that allow the preservation of the original supports of the information; first of all, it is necessary to have instruments that allow the preservation of the original supports of the information; but it is necessary to have instruments that allow the preservation of the original supports of the information; on the other hand, it is necessary to have instruments for the preservation of the information. The initial differentiation of the sciences occur precisely in the Alexandrian period, but their definitive separation into independent branches was long after the end of the Middle Ages. In medieval Western philosophy is widespread tripartite division of knowledge (Physics, Ethics and Logic), but very influenced by a theological sense. In this period there were two fundamental periods.

The first period was characterized by an attempt to recover Europe from Classical Antiquity. Here the church is the intellectual class and culture is restricted to the clergy. Thus, it is the church that will determine the development of knowledge at this time, and it will be within Christianity that new structures of science will be elaborated. A characteristic feature of this stage is the subordination of all sciences to Theology. The second period is characterized by the consolidation of the feudal system, which will condition a new structuring of knowledge, characterized by the process of differentiation of the sciences. This process, which was stagnant in the Alexandrian period and the end of the Middle Ages, acquired an unexpected development that began with the Renaissance, linked to the great discoveries, the development of cities, commerce and industry, providing the change to a capitalist economy as opposed to the feudal system.

As a result, new sciences emerged and the problem of systematization of knowledge became more acute. This increased with the emergence of the printing press and the accumulation of extensive bibliographic collections.

These historical events were a catalyst in the development of knowledge and, in the face of so much differentiation, a way of organizing the accumulated knowledge became urgent. Under these conditions, classification systems of great importance for the modern era began to emerge.

On this period and its changes Engels writes: "With the rise of the bourgeoisie the great growth of the sciences was taking place. The bourgeoisie needed, for the development of its industrial production, a science that would investigate the properties of physical bodies and the forms of manifestation of the forces of nature."

The stage of analysis was characterized mainly by the observation of things and phenomena in isolation by studying their decomposition and constituent parts but as individual objects and not as a whole. In this way a better differentiation of the sciences was obtained. At that time, this constituted a progressive method, since it allowed to know the particularities of each science, however it brought with it that in the process of investigation each field was so isolated from each other, that sometimes some phenomena were separated from their natural connection, which was undoubtedly a problem when organizing the sciences in a general system, since they were completely unconnected to each other. This was the first common defect of the classifications of the sciences.

The process of differentiation of the sciences inevitably originated the tendency to their integration, but the deeper this differentiation was carried out, the more complex their integration became.

Until today, the third stage, which is still developing, the differentiation of sciences becomes not only the basis for their integration, but also a component element of it. The emergence of new scientific weapons and particular disciplines contributes to the unification of all sciences into a single system of human knowledge. Thus, from the tendencies of integration and differentiation converge in the same system, these activities will be carried out in coordination with community organizations, companies and public and private institutions related to the respective specialty.

The beneficiary is the Municipality of Guayaquil and its accounting department, since the information will be more agile and efficient. It provides the opportunity for the necessary comparisons required for the research hypothesis, and enables the researcher, through statistical analysis of the data, to make meaningful interpretations in relation to the results of the study. Bearing in mind these basic functions that a design must satisfy, its choice should be made under certain general criteria

The designs can be considered of four types: descriptive designs, ex-post-facto designs, experimental designs and factorial designs: simple descriptive research, comparative descriptive research, correlational research, comparative causal research, longitudinal research, cross-sectional research. The organization of archives, from a technical point of view, is associated with three consecutive and complementary processes: classification, arrangement and archival description. Classification constitutes the backbone of any records management system, since it allows structuring, from its origin, the documentation produced by organizations in the

performance of their duties and responsibilities. This does not mean that the processes of classification and description are unimportant; it can be said that one would be meaningless without the existence of the other two, given their close relationship.

These processes are also linked to those related to document appraisal. Their correlation is considered essential in the processes of appraisal and the resulting actions of transfer, selection or purification of documentation. Their execution is only possible if the archives are previously and thoroughly organized, i.e., classified, ordered and described. However, it can be said that appraisal has more to do with the circulation, terms of validity and final destination of documentary information than with its organization. The construction of an archival classification system (sca) is not easy; it implies the analysis and generation of conceptual schemes and abstractions that must be materialized in working instruments that allow the complete identification, grouping, systematization and control of documentary information in organizations.

It also implies the participation of various stakeholders, since it is not only the archival professionals who are responsible for formulating a classification system that will have an impact on institutional behavior in relation to the management of documentary information: both the producers and users of information and those in charge of its administration and control have a strong commitment to the construction, implementation and updating of the classification system. Archival classification has given rise to enormous and very significant debates among specialists. From the formulation of the Principle of Origin and Respect for the Original Order of Funds, formulated by Natalis Wailly in 1841 with which, according to specialists, modern archival science was born as an independent discipline, to the formulation of the isdf (International Standard for the Description of Functions),

issued by the Committee on Good Practices and Professional Standards of the International Council on Archives in 2007,⁴ the subject of classification has not ceased to be present in the theoretical discussions of the archival discipline. Numerous experts on the subject, from various periods, representing different currents and schools, among them Sir Hilary Jenkinson, Elio Lodolini, Theodore R. Schellenberg, Michel Duchein, Antonia Heredia, Carol Couture, Jean Yves Rosseau, Michel Roberge, Ramón Cruz Mundet and Ramón Alberch i Fugueras, have contributed at times from frankly antagonistic positions to the debate that is expressed not only in relation to archival classification but also to the margins and horizons of the archival discipline, including the debate in question associated with the criteria on which the construction of classification systems and their instruments should be based.

Basically, the discussions reveal the historical evolution of archival science itself. In the case of classification, specialists have debated on three basic criteria to establish the documentary groupings and, consequently, their classification and materialization in the instruments in which they are expressed, such as classification tables.

On the contrary, a classification system must be developed on the basis of a thorough knowledge of the organizations' competency structure and a detailed analysis of their legal regulations, rules and internal policies; Despite its opponents, functional classification has been consolidated and has had a decisive influence on the generation of standards and provisions for the standardization of archival processes, which enjoy great acceptance internationally. Accordingly, this type of exploration, it can be defined as follows: to explore means to venture into unknown territory.

Field Research

Field research is a systematic process of collecting, processing, analyzing and presenting strategic data on real problems, collecting directly from reality the information necessary for field research, which can be exploratory or hypothesis driven.

Bibliographic research.

The bibliographic and documentary research is considered a systematic and sequential process of collection, selection, classification, evaluation and content analysis of the empirical printed and graphic, physical, virtual material that will serve as a source. The type of sample is variable, the one that is selected will depend on the quality and how representative it is desired for the study of the population. The sample is indispensable for the researcher and will depend on the precision desired by the researcher. The population used for the survey was composed of women, men, internal users and external users of the municipality. The samples were taken from Internal and External Communications, both Administrative and Accounting. In the archiv, it was observed that there is no proper handling of documentation and it is not properly organized. The staff lacks knowledge of technical processes for archival organization. The documentation that is not relevant in the archive occupies a large amount of physical space, which makes the work of locating it more difficult. Many documents were loaned without being registered, which makes it difficult to consult a document that has not been returned to the archive.

The proposal suggested in this guide to be implemented in the archive of the financial management is variable and represents great utility for internal and external officials to benefit from it. It will

be governed by the life cycle of the document, understood as the successive stages from its production or reception in the departments that generated it, temporary conservation, until its elimination according to the established rules to determine the final destination of each document. With the help of this guide, the location of the documentation for consultation will be efficient and its service of access to information will be modernized, its reorganization and constant maintenance, updating and preservation of its collection will be monitored by means of the conservation tables which, properly carried out by the personnel in charge, will complement its expeditious location.

It is up to the consideration of the authorities of the entity and except for their most enlightened criteria, to take this guide as a tool for the treatment of the existing information in order to keep a correct order and conservation under uniform criteria, executing and planning in a technical way the administration and service provided to the municipal officials and external users by the accounting archive.

Reference

- Archivo Universitario de Zaragoza. (2010). Estructura de datos Archivos aragoneses (EDARA): normalización en la descripción. Reyes Olvera, G. (2011). El cuadro de clasificación- concepto, tipos y estructuras
- Castelao Caruana, M. E. (2016). Las políticas públicas y su visión de la economía social y solidaria en Argentina. *Revista Mexicana de Ciencias Políticas y Sociales*, 61(227), 349–378. [https://doi.org/10.1016/S0185-1918\(16\)30032-0](https://doi.org/10.1016/S0185-1918(16)30032-0)

- Escamilla Solano, S., Plaza Casado, P., & Flores Ureba, S. (2016). Analysis of the disclosure of information on corporate social responsibility in urban public transport companies in Spain. *Revista de Contabilidad-Spanish Accounting Review*, 19(2), 195–203. <https://doi.org/10.1016/j.rcsar.2015.05.002>
- Mendieta Z., C. C. (2011). Universidad de Guayaquil. Escuela de Bibliotecología y Archivología. La Archivística como proceso técnico en la organización del fondo documental de las instituciones públicasMontaño. (1999). Didáctica de la Fundamentación Epistemológica Contable.
- Quimbayo Ruiz, G. A., Kotilainen, J., & Salo, M. (2020). Reterritorialization practices and strategies of campesinos in the urban frontier of Bogotá, Colombia. *Land Use Policy*, 99. <https://doi.org/10.1016/j.landusepol.2020.105058>
- Quiroga Baquero, L. A., & Padilla Vargas, M. A. (2014). El concepto de modo lingüístico y su aplicación en los procesos de enseñanza-aprendizaje mediante las TIC'S. *Journal of Behavior, Health & Social Issues*, 6(1), 9. <https://doi.org/10.22201/fesi.20070780.2014.6.1.48518>
- Universidad Nacional de Colombia. (2008). Guía para la organización y valoración de archivos acumulados.
- Universidad nacional de Colombia Secretaría general Unidad nacional de archivo. Tanodi. (2011). Administración de documentos y archivos. Textos fundamentales.

Free Software Applications to Support the Process of Critical Reading in Isidro Ayora

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Introduction

The University of Guayaquil in its interest to carry out the provisions of the Council of Citizen Participation and Social Control regarding the process of Linking with the Community for the creation of mechanisms that lead to the execution of agreements with public institutions in which the development of technological projects that contribute to the social improvement of citizens can be carried out. An agreement was signed in February 2019 with the Municipal GAD Isidro Ayora with the purpose of executing the project Promotion of the process of scientific research in children, adolescents and young people in vulnerable areas. This agreement arises from the need to strengthen, develop and enhance the skills of comprehensive reading in children and adolescents of the canton through technological tools and free software applications. The presence of an unknown word in a text can drastically affect the reader's comprehension, since they can interpret it incorrectly or ignore it. An engaged reader may take the time to search for the word they don't know, thus enriching their vocabulary, but having

to abandon the text, thus affecting their concentration (Shardlow et al., 2021). Therefore, complex words can impose serious difficulties, taking into account that their meaning usually depends on their context and cannot be easily inferred (Alarcon et al., 2020).

The use of technological tools used in the educational field has been very important in recent decades; internet connectivity as a means to complement teachers' support for teaching in an interactive way, develops new skills and abilities that strengthen the development of academic activities (Guadalupe et al., 2017). Under the criteria of Cadavieco et al. (2020), in their studies on M-Learning applications, they detected that children and adolescent have a technological criterion already developed and perform in good shape in the world of the internet, so they propose their ICT strategy based on the audiovisual narration of books and narrative of digital images penetrate their environment and make it easier to comply with the planning of educational learning. On the other hand, the increase in the use of technology in people of early age and the lack of control by parents, has generated distractions and misuse of electronic devices, as a result of this, more and more less interest in reading is evident in children and adolescents (González, A. L., & Herrero García, N. (2019). The main problem is that students after reading a text, cannot understand the meaning of it. That is why it is necessary and important that at an early age, they are taught a methodology that leads them to carry out specific research in specific sites, that is, in sites that have scientific results (Frison, 2015). According to Benavides (2020), the low rates of reading comprehension inspire us to look for options that allow us to find the resolution of this problem and allows us to detect possible failures in the procedure of teaching and learning, allowing us to transform educational practice, for example, we can find possible failures in the procedure of teaching and learning, allowing us to transform educational practice, to offer students techniques that

help them obtain the skills required for correct reading comprehension.

Disadvantages also increase in rural communities where an additional constraint is a lack of technological resources (Hampton et al., 2021). According to Peregrino (2019) in rural areas, access to education is limited and in many cases the conditions of school infrastructure are not adequate, they do not have basic services and much less with computer equipment. However, the use of technology can mean a better quality of life for those who live in these areas. For example, in a case study, a rural community leveraged e-commerce to lift themselves out of poverty and become successful entrepreneurs with online businesses (Tim et al, 2020). Activities of connection with the community by the university area such as the one described in this article, seeks to contribute with tools so that those who live that reality have the opportunity to overcome themselves.

Undoubtedly, it is very important to promote academic experiences with other universities on the milestones on which the link with society is based and especially the academic contribution that is provided to the vulnerable sectors of the environment, so the Learning Empowerment Center of the Andrés Bello University of Chile (UNAB) offers in its community context the teaching-learning process through virtual workshop sessions in all its headquarters, benefiting 802 people, including children, young people and adults (UNAB, 2021). Figueroa and Santillan (2021) carried out their studies in the free software eXeLearning, the same one that complies with the properties of creating learning objects with metadata format, with the aim of capturing each characteristic of the data obtained from readings, improving them with interactive content where brainstorming predominates for their diagnosis, thus

raising the development of skills and critical thinking both in children, adolescents and young people.

In this article, the results of the experience of the project of linkage with society called "Promotion of the process of scientific research in children, adolescents and young people of vulnerable areas" are presented, proposed by the career of Engineering in Computer Systems of the Faculty of Mathematical Sciences of the University of Guayaquil, executed in the semester 2019-CII-2020CI in the community of Isidro Ayora.

The general objective

Motivate children, adolescents and young people of the Isidro Ayora canton to improve their reading comprehension and critical judgment through the use of strategies and computer applications.

The specific objectives:

- 1) Build a baseline by means of a diagnostic test of comprehensive reading application that allows to determine the level of reading comprehension at the beginning of the project.
- 2) Apply three strategies of critical reading through the use of computer tools and free software applications.
- 3) Analyze and evaluate the results obtained during the process of critical reading that allows determining the contribution achieved to the cognitive development of the participants. The project was aimed at children and adolescents of the Isidro Ayora canton, between the ages of 7 and 16, originally from the different communes that make up the canton. The project execution team was made up of the project director,

several collaborating professors, and the students linked to community practices, all belonging to the Computer Systems Engineering career of the University of Guayaquil. The students of the University of Guayaquil linked to the community practices of the project, met in the municipal library of the Isidro Ayora Infocenter to assign the geographical space that each team should visit for the realization of the inscriptions. Later we proceeded to go house to house. The banner along with the explanation of the project provided security and confidence to those families who wished to register their children or represented. Those interested filled out a form with their personal data. The UG students made a classification of the beneficiaries grouping them by age, to determine each level and thus analyze the readings that would be applied to each group. A web exploration was carried out about the different mobile, web and desktop applications that facilitate the critical reading process. These applications were analyzed for use during the execution of the project. The technological resources used such as projectors, laptops, pc's were those provided by the Infocenter Isidro Ayora. During the time of the COVID-19 pandemic exactly in the 2020-CII period, other videoconferencing applications and social networks were used for the development of the project, which facilitated the teaching-learning process of the beneficiaries. The collection of the information was carried out through a comprehensive diagnostic reading test using computer tools and free software applications that allow determining the level of reading comprehension of the beneficiary at the beginning of the project. Subsequently, questions were asked to assess the reader's comprehension once the class was over. Several readings were used according to the age of the participants

making use of computer applications and electronic devices of different types, such as: cell phones, tablets, PC's, laptops.

As a result of the execution of the project, it was possible to involve a total of 134 students of the Computer Systems and Software Engineering career of the University of Guayaquil. They completed their community practices as a mandatory prerequisite for their graduation (cpccs, 2013). According to the data on the registration sheets, 524 beneficiaries were registered for the project, including children, adolescents and young people. The project begins with 124 interested parties in the 2018 IIC semester, a number that increased in the following two semesters with 164 and 171 beneficiaries. However, this figure decreased in the first cycle of 2020, where a little less than half joined the initiative which is understandable because of the situation that was experienced in the whole world.

It represents the number of responses obtained during the comprehensive reading trainings of the 2019 CI semester, the results of the evaluations carried out from July 22 to August 2 and that most participants have obtained 5 successes throughout the process. As mentioned above, 171 people signed up in the 2019 CII semester, unfortunately 46% left the project. The beneficiaries were divided into 4 groups by age range. The groups with the largest members are the second and third groups. The results obtained by each of the tests carried out segmented by the groups formed during the 2019 CII semester. The results of the diagnostic test versus the final evaluations show us a significant improvement in the data collected. The difference is very clear, the number of hits obtained in the final tests is always higher compared to those of the initial tests in all groups. During the year 2020 the COVID-19 pandemic occurred and this meant a change in many areas, which is reflected in the number of participants who enrolled in the project

(65) versus those who completed (26). Although 40% of enrollees withdrew, the percentages of results of the final evaluations are considerably better than those of the diagnostic evaluation. A comparison between the results obtained in the initial and final tests in the 2020 CI semester. The average obtained in the diagnostic tests is 4.71 out of 10 and 7.35 in the final evaluations. This table reflects what has been observed in the results obtained in the other cycles. The final results are better than the initial ones. This pattern indicates that the trainings received have improved the reading comprehension of the beneficiaries cycle by cycle.

The analysis of the results allowed to determine that during the development of the project it was demonstrated that the use of free software applications for reading, computer tools, and videoconferencing platforms for communication and education used with the beneficiaries was a success in their academic management. A knowledge acquired in the beneficiaries at the time of making a judgment of the subject treated was evidenced, obtaining a higher score in the final tests of the project, compared to those obtained in the initial diagnostic tests. Based on the technological strategies of virtuality applied during the development of knowledge transfer to the beneficiaries of the community of the Isidro Ayora canton, a digital transformation was obtained in the process of teaching and learning didactic contents. However, it is important to mention that a considerable desertion of beneficiaries was obtained during the Project, which could be due to several factors among which the use of the mobile device can be mentioned since, since the covid-19 pandemic, it has become the main resource to carry out work and study from home.

A greater dissemination of the technological projects provided by the University of Guayaquil is recommended in order to raise awareness in the community. Motivate local internet service

providers, the GAD of the Isidro Ayora canton and the University of Guayaquil, to form a strategic alliance for social purposes committed to reducing the digital divide of rural communities eager to become cultured through reading habits that lead to critical judgments of content. Achieve agreements or agreements with private companies in the town, in order to obtain donations of technological equipment, to meet the needs of the beneficiaries due to the digital transformation that education underwent. Establish logical incentives for those enrolled in the project, through the use of technological strategies, in order to achieve constant assistance during the execution of the transfer of knowledge to the beneficiaries in the virtual environment and maintain a flexible schedule planning with the aim of capturing the greatest participation of the population.

Linkage with society as a tool for generating well-being through the development of masculinities

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Introduction

The university's social link is based on a diagnosis that allows establishing needs on which it is prudent to intervene in order to have an impact on the contribution that the academy makes on individual and social training within the training for the development of each student based on aspects related to the exercise of responsible citizenship aimed at the development of collective welfare that undoubtedly flows within the knowledge and training capable of building inclusive and supportive scenarios (Beltrán-Llervador, Íñigo-Bajo, & Mata-Segreda, 2014).

The main theories related to social responsibility on which the university can act are 5, namely: Agency, oriented to accountability; Stakeholders oriented to share management models that are socially responsible; Legitimacy, aimed at improving the image and reputation in the social sphere; Institutional, oriented to manage social responsibility policies; Resources and capabilities, manage strategies related to social responsibility (Larrán & Andrades-Peña, 2015).

The humanistic trend that uses social bonding recovers principles and values that reaffirm the feeling of building spaces in which one can live in well-being, where the student who participates in the

bonding process is an actor and protagonist of community development, co-creating spaces for social interaction and healthy coexistence (Olarde-Mejía & Ríos-Osorio, 2015).

The impact of the university's social linkage covers two key factors (organizational and academic) that show four aspects: internal and external, related to labor and environmental aspects; educational related to student training; and cognitive related to epistemology and research. The aspects related to student training are part of the study presented to the reader. To have an impact on society through social linkage is a difficult task because the pretension of solving the problems that affect the population has unique nuances that complicate the process of action. However, methodologies related to "learning and service" imply socializing full action co-responsibilities. The linkage programs are anchored in a territory with a previous diagnosis on which to land in order to impact on a synergy of research and training of human talent aware of the responsibility to innovate in favor of the generation of welfare of those involved (Vallaey, 2014).

In fact, a student linked to society will be able to demonstrate empathy by acting in favor of the generation of his or her own welfare and that of those around him or her, developing his or her own conscience starting from his or her own reality linked to that of others in such a way that there is a primary identification that starts from what the student is able to recognize in him or herself and then through his or her own eyes is able to see through the eyes of others. In this regard it is relevant to mention that several studies conducted in universities in Chile, Spain, Colombia, Peru showed that men have a lower intentionality of action towards collective benefit and welfare than women (Arango, Clavijo, Puerta, & Sanchez, 2014).

Based on the above, the research formulates the following problem: in what way does the link with society become a tool for the generation of well-being from the development of masculinities?

The research objective is aimed at determining the concepts and prejudices and their relationship with models of domination and exclusion, relating them to the development of masculinities within university social bonding.

The research is justified in the relevance that, according to UNESCO, establishes as vital when training students in principles and values throughout their passage through the university, constituting itself as a moral activity of the institution towards its community, understanding that, the responsible citizens they form in their classrooms will act in synergy with the cognitive and professional development acquired throughout their professional growth (Martí, Martí-Vilar, & Almerich, 2014). From the practical point of view, the development of assertive masculinities within the field of action of social bonding helps to find solutions to the problem of gender violence and to generate well-being, scientifically justifying the research in the contribution of constructs that the research makes to contextualize spaces for the development of masculinities in different areas oriented to the search for frequent wellbeing.

Masculinities

Delving into masculinities, these are considered as "social constructions that vary over time" (Fernández, 2021, p.52). In past times masculinity was seen only as a synonym of manhood, of being macho and virile, where emotions, expression of feelings,

demonstrations of care for others are denied and relegated to feminine manifestations (Bard, 2016).

In the twentieth century, the differences between masculinity and femininity were differentiated by stereotypes that were influenced by variables such as sex, race and social classes (Vallejo & Miranda, 2021). Masculinity is part of one's gender identity that makes men have the conviction of being part of the male sex. Currently, it is manifested as an avant-garde social movement that has promoted gender relations and responsible fatherhood with full participation in the integral development of children (Garcia & Bermudez , 2015).

The work done with men is self-reflective, self-critical; it includes relationships with women to delve into the problem of achieving equity and sensitivity in the sharing of responsibilities in the generation of spaces of gender equality, creating meaningful relationships (Hernández, 2014).

Working on the development of masculinity implies recognizing the differences that exist between men and that these differences give them the ability to act as agents of change to improve the lives of women, a clear example of this is in sharing the care of the home and family, for this it is vital to work from the interests of men, knowing what is of interest to men opens the range of possibilities related not only to their hopes but to their problems that can be addressed from a gender approach (Fernandez, 2021).

Gender orders can have a positive impact on developing personal transformations and affective processes within the men's collective. Closing gaps between men and women breaks traditional models of subjugation that lead various types of violence (Jiménez & Morales, 2021).

Managing masculinities is part of human management itself, which involves reflective processes; if knowledge management is related to social responsibility, it is recognized that the latter is part of an internal and external dynamic of organizations that, from a business point of view, supports the efficient management of personnel (Saldarriaga, 2013).

Masculinities can be worked on starting from the bio, eco, ethical and social dimensions that are born from the projects and programs of linkage with society, taking man as a holistic whole with values, cultures, traditions, religions, etc., which allows in an open and dynamic way to interact within the context where he develops, remembering that the linkage with society offers spaces for the dialogue of the academic with the popular (Pérez, Albuja, & Rodríguez, 2019).

The development of masculinities as part of the work that is carried out within the linkage with society even impacts within the environment related to the social and solidarity economy with: (1) Equity, preventing discriminatory behaviors; (2) Work, environments of healthy and harmonious coexistence; (3) Cooperation, networks and spaces for common participation; (4) Commitment to the environment, taking care of others from the care of oneself. Within all of this, ethical purposes and sustainable social development are widely benefited through social bonding within the development of masculinities capable of acting in a critical and reflexive manner that leads to a sense of well-being (Urdapilleta, 2019).

Well-being

Now when delving into well-being it is important to indicate that it is not given in terms of material possessions, facial expressions,

behavior, ways of speaking but is closely related to the relationships established with friends and family, the conditions of life development, use of free time, couple relationships, work environment, economic income, health, values, access to natural environments, physical safety, just to mention a few, so that it can be seen that it is complex to manage aspects related to well-being. In fact, the referents of what "it is to be happy" play an important role in the subjective determination of what well-being is. (Jaramillo, 2016).

In fact, a study conducted shows that men report more autonomy and positive emotions than women; university students report having greater subjective well-being than their peers with lower academic level, this situation is strengthened by the social interrelation to which they are exposed (González-Villalobos & Marrero, 2017). Another study shows that feelings of belonging to the community are a variable that is directly related to aspects related to well-being (Dias, Bastos, Marzo, & Garcia del Castillo, 2016).

Subjective well-being helps people to function effectively in various aspects of life closely related to intrapersonal and contextual factors and closely linked to resilience, which allows coping with adverse situations by managing optimism and emotional balance. Fostering resilience and self-concept within the educational implications allows building spaces to strengthen well-being (Rodríguez-Fernández, Ramos-Díaz, Ros, Fernández-Zabala, & Revuelta, 2016). It is true that from public policies various programs and projects are undertaken to guarantee basic needs that produce well-being, however, it is imperative that academics work on this and not only limit themselves to situations of lack, failures or vulnerability (Benavides, Delclós, & Serra, 2018).

Another interesting aspect that favors well-being is the active displacement, just 15 minutes of active displacement in routes that offer security is achieved to improve psychological health, in this aspect also the link with society collaborates since in most cases students must make active displacements to the beneficiary territories (Ruiz-Ariza, de la Torre-Cruz, Redecillas-Peiró, & Martínez-López, 2015). In addition, well-being encompasses positive and negative affect which act as emotional responses to life itself (Ramos-Díaz, Rodríguez-Fernández, & Antonio-Agirre, 2017).

The development of identity has a direct impact on well-being; therefore, working on masculinities strengthens the recognition of identity and therefore favors a high level of well-being; educational institutions, by including social bonding programs and projects, offer coping and resilience tools that, together with harmonious teacher-student relationships, contribute to achieving this goal. In times of Covid-19, uncertainty about the future is a trigger that undermines well-being, producing discouragement, pessimism and lack of motivation, which affect the achievement of goals. This, together with the absence of physical contact due to virtuality in teaching spaces, constitutes a challenge to work on well-being (López, Fernández, Torres, Cardona, & Lemos, 2021).

To work on well-being it is vital to act on self-acceptance, social relationships, autonomy, life purposes, mastery of the environment

and constant search for personal growth all these dimensions allow to obtain a meaning to life that produces happiness and/or pleasure (Valdiviezo & Lara-Machado, 2021), all these aspects can be addressed without problems within the execution of social bonding activities while developing the masculinities of those involved.

Within social bonding, work is done on the participants' sense of community, which implies that feeling of belonging and commitment of each individual to a group that impels them to work on its continuity, where the shared emotional connection is linked to social integration and community organization. This sense of community ultimately achieves wellbeing by vastly improving the overall quality of life (Leiva, Mendoza, Torres-Cortés, & Antivilo-Bruna, 2021). Within this context, working with men and for men involved in the processes of linking with society develops assertive masculinities that give a sense of wellbeing to life.

An exploratory and predictive methodology based on bibliographic and field sources is used. The information that has gone through a process of serious revision of the state of the art is based on primary and secondary sources. The primary sources arise from the application of data collection instruments and the secondary sources were taken from articles published in the Scielo and Sciondirect databases. For the field research, the survey research technique was used, using the data collection instrument called questionnaire; a focus group was also applied.

The type of sampling applied was non-probabilistic convenience sampling. The sample is composed of 200 male university students residing in Guayaquil who at the time of the survey were actively participating in community outreach projects. The instrument applied was a questionnaire divided into aspects related to sociodemographic variables and 14 closed questions covering

aspects related to principles, values, attitudes and perceptions related to aspects related to masculinities, well-being and the link with society.

The application of the instrument was carried out in the period corresponding to the year 2018 - 2019 in person.

A focus group was also applied to a group of 10 students from different university careers to talk about aspects related to masculinity within their own experiences and within the practice of different activities related to the link with society.

The process is established by taking as a reference the experiences of the men involved while executing the social linkage activities for a period of no less than 2 months of community activities and no more than 4 months of execution of the same.

The men who constitute the sample under study at the time of answering the questionnaire were active members of a linkage project, dedicating at least 3 to 5 hours of field work per week in direct relation with the beneficiary territory.

The beneficiary territory has little academic education, they are of a low socioeconomic level, most of them work in small businesses that have helped them to support their families, some of them (approximately 28%) suffer from some type of physical disability.

All the beneficiaries participate enthusiastically in the outreach activities.

The data collection instrument was applied to determine the perception of the men surveyed as a result of the benefits that the social linkage offered them personally.

When the questionnaire was applied to learn about the approach to masculinities, 8 questions were asked.

In the focus group applied to 10 students, information was obtained regarding the masculinities of those involved, who were unable to conceptualize what it means to be a man, associating masculinity with the sex with which they were born, relating it to characteristics inherent to strength and virility. Within this context, all of them stated that they had been educated either within the family or educational environment with the phrase "men do not cry".

A successful man is considered by them as one who manages to have a wife, children, house and car, a job that allows them to travel abroad on vacation, having enough money to be the main provider for the household.

When asked about aspects related to self-concept, most are satisfied with what they have achieved, although they consider that they need to improve in many aspects. When asked about the aspects on which they can improve, many allude to their character, personality and interpersonal relationships, among which those with the opposite sex, family and social relationships stand out.

When asked if they are happy, all are silent, then some say yes, others say they are calm.

They were asked about their experiences in the outreach activities with society and all commented on their experiences with the beneficiary territories, where the common denominator was the feeling that they were able to help other people and that these

people showed their gratitude and affection in different ways. One student even gave way to tears when he recalled the moment when he said goodbye to the community due to the completion of his linkage activity. He said he felt attached to the community even though he traveled about two hours and thirty minutes to get to the sector every Saturday and Sunday. It is interesting to mention that at the beginning of the outreach they saw the activity as "just another subject they had to pass in order to graduate" but that as time went by it became a social responsibility activity that produced contentment.

The joy felt by the focus group participants as they recounted their experiences overflowed with laughter, peace and empathy.

The results show that the bonding activities have positively affected men in dimensions that are linked to well-being such as self-concept, interpersonal relationships, autonomy, mastery of the environment and personal growth. It is of particular interest to note that respondents reported feeling happy when they were engaged in social bonding activities.

The happiness that comes from knowing that one is helping another builds empathy, gives a sense of achievement and creates spaces free of violence and healthy coexistence.

However, when addressing masculinities, the results show that it is prudent to work on the expression of affection in order to overcome historical forms of violence in situations that require conflict resolution. It can also be seen that most of the men respond that they do not express dependence, which implies that they want to project security, strength, and virility; this does not mean that independence is negative, it is simply important to recognize that human beings are social beings who relate to one another, and in

these relationships, dependence for the common good is valid. In fact, the word virility comes from virtue that grants honor, which is synonymous with power in relationships (FLACSO Uruguay Gender and Culture Program, 2016).

The answers also indicate that men consider that masculinity privileges acting rather than speaking, imputing to women the ability to speak more and act less. In relation to paternity, it is interesting to address the responses that show that men do not express affective emotions in gestures and words with their children, while at the same time they have little participation in the care of the home and domestic chores, traditionally relegating this "responsibility" to women who are represented as mothers, wives, sisters or daughters.

From all of the above, it is evident that bonding has a positive influence on the well-being of the students under study, but it also shows that masculinities could be worked on to turn them into assertive masculinities, breaking the molds of ideal masculinities that are nothing more than the product of patriarchal models that over time have produced various manifestations of gender violence, preventing progress in spaces that promote respect, inclusion and equal opportunities.

The activities that are developed in the projects of linkage with society can become spaces for open dialogue and reflection that allow the detection of situations of exclusion, discrimination and violence in order to address them in favor of the construction of assertive masculinities in the community work from the commitment in the beneficiary territories manifested by the way of speaking, gestures, didactic material, readings, audiovisual material, social interaction, among others.

It is possible to work on these masculinities from the intervention of the university social linkage by including it within the programs and projects, which would even have a multiplying effect in the second phase by working with the participants of the beneficiary territories.

Within each linkage program and project, it is possible to distinguish men and women and integrate them, establishing a baseline to know their interests, promoting activities and instruments from the perspective of gender equality.

Working with men on aspects related to gender violence and the development of masculinities that are not determined exclusively by the biological part but by principles and values free of prejudice is undoubtedly a fertile field on which to cultivate, promoting active participation in the care of the home and family members, prioritizing displays of affection and expression of words of affection to the family environment, simply opening paths for respect and tolerance to various forms of masculinities that produce individual and social well-being.

Referencias

- Larrán, M., & Andrades-Peña, F.-J. (2015). Análisis de la responsabilidad social universitaria desde diferentes enfoques teóricos. *Revista Iberoamericana de Educacion Superior*, 91-107.
- López, L., Fernández, Y., Torres, A., Cardona, F., & Lemos, M. (2021). Bienestar y autoestima: un estudio comparativo en estudiantes de los colegios de la Policía Nacional. *Revista Logos Ciencia & Tecnología*, 13(2), 8-23.
- Vallejo, G., & Miranda, M. (2021). Masculinidades y feminidades: estereotipos, estigmas e identidades colectivas (Latinoamérica en

el siglo XX). Del arquetipo al estereotipo. Modelos generizados para normalizar sociedades modernas. *Historia y Sociedad*, 8-14.

Arango , O., Clavijo , S., Puerta , I., & Sánchez , J. (2014). Formación académica, valores, empatía y comportamientos socialmente responsables en estudiantes universitarios. *Revista de la Educación Superior*, 89-105.

Bard, G. (2016). AFERRARSE O SOLTAR PRIVILEGIOS DE GÉNERO: SOBRE MASCULINIDADES HEGEMÓNICAS Y DISIDENTES. *Península*, 101-122.

Beltrán-Llevador, J., Íñigo-Bajo, E., & Mata-Segreda, A. (2014). La responsabilidad social universitaria, el reto de su construcción permanente. *Revista Iberoamericana de Educación Superior* , 3-18.

Benavides, F., Delclós, J., & Serra, C. (2018). stado del bienestar y salud pública, una relación ue debe ser actualizada. *Gac Sanit*, 32(2), 193–197.

Dias, P., Bastos, A., Marzo, J., & Garcia del Castillo, J. (2016). Bienestar, calidad de vida y regulación afectiva en adolescentes portugueses. *Atención Primaria*, 48(7), 432-439.

FLACSO Uruguay Programa Género y Cultura. (2016). *GÉNERO Y MASCULINIDADES - Miradas y herramientas para la intervención*. Uruguay: FLACSO .

Garcia, J., & Bermudez , G. (2015). ÁLISIS JURÍDICO DE LA PATERNIDAD CON PERSPECTIVA DE GÉNERO: UNA VISIÓN DESDE LA MASCULINIDAD. *Revista Latinoamericana de Derecho Socia*, 31-59.

González-Villalobos, J., & Marrero, R. (2017). Determinantes sociodemográficos y personales del bienestar subjetivo y

psicológico en población mexicana. *suma psicológica* 24 (2017)(24), 59–66.

Hernández, I. (2014). El ser del varón y el diseño de políticas públicas e intervención social con perspectiva de género. *Revista Mexicana de Ciencias Políticas y Sociales*, 209-234.

Jaramillo, M. (2016). Mediciones de bienestar subjetivo y objetivo: Complemento o sustituto? *Acta Sociológica*, 49-71.

Jiménez, J., & Morales, M. (2021). Feminismo y masculinidades: Transformación política y existencial en la narrativa de hombres activistas antipatriarcales. *Psicoperspectivas*, 20(1).

Leiva, L., Mendoza, A., Torres-Cortés, B., & Antivilo-Bruna, A. (2021). Relación entre sentido de comunidad, bienestar, salud mental y género en adolescentes escolarizados. *Psicoperspectivas*, 20(2), 1-14.

Martí, J., Martí-Vilar, M., & Almerich, G. (2014). Responsabilidad social universitaria: influencia de valores y empatía en la autoatribución de comportamientos socialmente responsables. *Revista Latinoamericana de Psicología*, 160-168.

Olarte-Mejía, D., & Ríos-Osorio, L. (2015). Enfoques y estrategias de responsabilidad social implementadas en Instituciones de Educación Superior. *Revista de la Educación Superior*, 19-40.

Pérez, F., Albuja, J., & Rodríguez, D. (2019). La extensión universitaria desde un enfoque bio-eco-ético-social. Diálogo entre lo local y lo científico. *Revista Educación*, vol. 43, núm. 1.

Ramos-Díaz, E., Rodríguez-Fernández, A., & Antonio-Agirre, I.-A. (2017). El autoconcepto y el bienestar subjetivo en función del sexo y del nivel educativo en la adolescencia. *Psicología Educativa*, 23, 89-94.

- Rodríguez-Fernández, A., Ramos-Díaz, E., Ros, I., Fernández-Zabala, A., & Revuelta, L. (2016). Bienestar subjetivo en la adolescencia: el papel de la resiliencia, el autoconcepto y el apoyo social percibido. *Suma psicológica* , 23, 60-69.
- Ruiz-Ariza, A., de la Torre-Cruz, M., Redecillas-Peiró, M., & Martínez-López, E. (2015). Influencia del desplazamiento activo sobre la felicidad, el bienestar, la angustia psicológica y la imagen corporal en adolescentes. *Gac Sanit.* , 29(6), 454-457.
- Saldarriaga, J. (2013). Responsabilidad social y gestión del conocimiento como estrategias de gestión humana. *Estudios Gerenciales* , 110-117.
- Urdapilleta, J. (2019). Fortalecimiento de la responsabilidad social universitaria desde la perspectiva de la economía social y solidaria. *Perfiles Educativos* / vol. XLI, núm. 164, 2019 , 171-185.
- Valdiviezo, C., & Lara-Machado, J. (2021). Influencia del funcionamiento familiar y bienestar psicológico en padres de familia ecuatorianos. *Revista Medica Electrónica*, 43(4), 987-1000.
- Vallaes, F. (2014). La responsabilidad social universitaria: un nuevo modelo universitario contra la mercantilización. *Revista Iberoamericana de Educación Superior*, 105-117.

Influence of brand management in entrepreneurships of the MUEVE foundation as a strategy to turn them into Lovemarks

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Introduction

Within consumers' behavior, different factors motivate people to make decisions. This occurs thanks to strategies that influence their attention and loyalty to certain brands. For this reason, effects can be generated that activate cognitive structures in people, which go beyond consciousness and manage to manipulate their future actions and unconsciously influence their attitudes and behaviors (Mantovani and Galvão, 2017). Thus, when you understand how consumer motivations and decisions work, you have a clearer vision of what strategies to use to attract them and impact their behavior.

One way to generate effective strategies to build customer loyalty is through brand management, where not only are graphic elements taken into account, as is often understood when this term is used, but it goes far beyond what tangible and obvious. In this way, brands are not managed only by applying elements such as logos or supports such as advertisements and labels. It is about using strategies that involve managing values and identity attributes that belong to the brand (Lucero, 2017). Good brand management allows the correct message to be transmitted to the public and makes the brand stand out and be competitive. In this sense, for a brand to differentiate itself, it must have distinctive symbols that connect through people's senses (Ramírez, 2021).

When you have good brand management, it is much easier to retain customers, since through the strategies applied, people develop love and

respect for the brand. This state of preference and loyalty that a brand has is known as Lovemark, a marketing term proposed by Kevin Roberts. Lovemarks represent experiences and an identity that people love and respect at ideal levels to create strong connections between them (Fernandes et al., 2017). It is considered the ideal point in which every brand should be to get the most out of its work and have the unconditional attention of its clients.

However, although proper brand management is an important factor in turning them into Lovemarks, sometimes the owners of these brands do not have a clear vision of how this can affect the performance and growth of their business, both from early stages and later. Its maintenance over time. In this way, many brands may have difficulties in generating the result that is expected of them, becoming obsolete compared to competing brands. This represents a negative point that generally affects the brand, preventing it from obtaining the best perception from its collaborators and customers.

For this reason, the objective was to find out aspects to improve the enterprises belonging to the MUEVE foundation in the management of their brands in order to convert them into Lovemarks. To determine this, the main theoretical bases of Lovemarks and brand management were addressed. Then, the methodological process followed to obtain information from entrepreneurs about their knowledge on these issues and how they apply it to their brands was detailed. Based on these results, the main factors that must be improved were identified to build the relationships between the brand and the people that characterize the Lovemarks and thus generate proposals that promote the brand development process.

Brand loyalty in difficult times

On many occasions, brand owners or managers do not consider the operation of brand management as a means to develop relationships between people and the brand. This makes it really difficult to turn these

brands into Lovemarks, especially in situations where brand loyalty may be compromised and customer loyalty hasn't been properly built to avoid this.

In the case of Guayaquil, many enterprises affected their performance due to the difficulties caused by the health emergency (Sumba et al., 2020). In the city, there is an organization called MUEVE, dedicated to advising, supporting, and integrating the Venezuelan community in Guayaquil. Within the community belonging to this organization, there are several entrepreneurs, some of whom are in the situation mentioned above.

One of the aspects that plays an important role in the recovery of these entrepreneurs is the correct management of their brands and the knowledge on how to create strategies that manage to boost their relationship with customers. According to this, when customers notice that a brand has invested economically and socially in the relationships they have with them, they tend to give a similar investment response towards the brand (Krishna and Kim, 2021). It is possible that the brands of the entrepreneurs studied are not having the correct brand management or do not know how to do it, which is why the ideal relationship of respect and love towards their brands is not developed, making them unable to become Lovemarks.

For this reason, the objective of this study is to find out what aspects the ventures belonging to the MUEVE Foundation must improve in managing their brands to convert them into Lovemarks. This can be achieved through the detection of the main problems in managing their brands and a proposal that supports their creation and maintenance.

Lovemarks brand management as a means to create Lovemarks

One of the fundamental parts to consider when building and managing a brand is that it is characterized by being mainly intangible, made up of the personality and values that define it; therefore, all those qualities that represent the brand are materialized and eventually recognized by customers (Barrientos, 2020). When managing a brand, you must work on

its value as a starting point to build its material part later. In this way, in the brand management process, it is possible to identify and position the essence and uniqueness of the brand in the consumer's mind, making them feel that it is exclusive and unique to them (Río, et al., 2017).

Brand management is determined by the internal rules of the company, its values, symbols, and behaviors. For this reason, if a brand and the personnel that support it are able to adequately combine the values that represent it, the symbols with which its clients distinguish it, the norms with which they conduct themselves inside and outside the organization, and the behavior followed by its directors and collaborators, has the possibility of competing with large companies, as well as growing and staying in the market (Maldonado, 2019). In this way, it is understood that brand management encompasses different dimensions, which go far beyond just the company's visual identity.

When a brand is personalized, a positive effect is achieved on how brand value and loyalty towards it are built (Palomba, 2021). On the other hand, it is considered that the brand is managed through changing processes, thanks to the fact that the public is in charge of defining part of its identity (Wider et al., 2018). For this reason, special attention must be paid to how the brand's personality is configured since it must have the power to make customers feel identified with it.

In this sense, each brand can adapt its attributes to attract and interact with people, creating communities that follow and share these characteristics. In this way, the processes involving brand management direct companies to better positioning their products through the construction of emotional bonds with customers (Gonzales et al., 2018). Thus, by forming strong emotional ties, brands that reach the level of Lovemarks are given way.

The term Lovemark refers to the brand that has achieved such a deep emotional connection that it results in unconditional customer loyalty. Roberts (2004), the author of the book on Lovemarks, mentions that "the fact is that Lovemarks are created and owned by those who love them..."

Wherever there is a customer in love, there is a Lovemark" (p.71). For this reason, Lovemarks are closely linked to the identity of those who follow them, and are not limited to a brand of a product or service, but can also be shown to the public in other ways, such as the brand of a city, a person or another. Lovemarks transcend what is traditionally understood as a brand since they manage to occupy a special place in the minds and hearts of consumers (Jahanvi and Sharma, 2021).

When people relate to a brand at this level, there is a new concept of its value. A Lovemark is also considered as a strong combination of love and respect for a brand, and all this comes from the development of that strong affection and a deeply emotional and sensory relationship of the consumer with a certain brand (Fernandes et al., 2017).

Loyalty to certain brands is built from positive experiences where the values and personality of the brand are present. This is how the relationship of trust towards a brand is significantly influenced by the respect and love that customers feel towards it, which shows that the Lovemarks theory is adequate to direct the development of loyalty towards brands (Song, 2019). For this reason, it is possible that with a better understanding of how brands work and how they connect with customers, it is possible to determine the aspects that must be improved to convert them into Lovemarks and achieve greater visibility and attraction.

Business brand management

Through the ventures belonging to the MUEVE foundation, it was possible to obtain information on how they manage their brands and the level of knowledge they have about how this influences the process to convert them into Lovemarks. This allowed the reality of the problem studied to be understood and proposals to solve it can be generated.

To achieve this, the study was carried out from a quantitative, non-experimental, transversal temporal approach, since in this way certain attributes that entrepreneurs recognize about their brands and their

performance can be evaluated. Using a quantitative approach, it is possible to detail, interpret and even predict the phenomena studied through the relationship between the variables present (Hernández and Mendoza, 2018). Through an investigation of this type, it is possible to determine how other enterprises can behave in terms of managing their brands, taking the group studied as a reference.

In the case of this research, a questionnaire composed of 10 closed questions was proposed as a data collection instrument. This instrument was applied through the Google Forms platform and sent to entrepreneurs who work with different types of businesses. A population of 50 entrepreneurs belonging to the community of the MUEVE foundation participated in the questionnaire, of which a sample of the same size was considered. The applied questionnaire had questions that were evaluated through a Likert scale. In this scale, several options were presented to be evaluated with a 5-level criterion: disagree; something in disagreement; neither disagree nor agree; somewhat agree; in agreement.

The first questions that will make up the questionnaire will be focused on determining the knowledge that entrepreneurs have about brand management, Lovemarks and the aspects that must be taken into account to convert a brand into a Lovemark. Likewise, with the following questions, the current state of the brands studied will be investigated, taking into account the emotional connections with the clients, their values, the personality of the brand, the brand management in general, the visual identity, the behaviors and the standards corresponding to the brand. In this way it is possible to have a general vision of the operation of each of the brands studied and the aspects to improve.

The largest group of people surveyed corresponds to 56% who disagree about knowing what a Lovemark is. In second place, there are two groups with 16% present in entrepreneurs who consider being somewhat in agreement and in agreement. There is the group represented by 10%, which is somewhat in disagreement and 2% who state that they neither

agree nor disagree about knowing this term. In this regard, the little knowledge entrepreneurs have about Lovemark is observed.

The highest percentage of entrepreneurs corresponds to 58%, who disagree about knowing the aspects that their brand must take into account to become a Lovemark. The second group with the highest percentage belongs to 20% of the entrepreneurs who consider being somewhat in agreement in this sense, there are 14% of the respondents who state that they are somewhat in disagreement, and 8% of the entrepreneurs, agree with this. It is observed that most entrepreneurs do not know how to work to make their brands a Lovemark.

It can be seen that most of the entrepreneurs correspond to 32%, who consider that they do not disagree or agree that their brand has been able to create an emotional connection with their customers. The second largest group is represented by 24% of the entrepreneurs who consider themselves to agree with this, then a group that represents 20% considers to be somewhat in agreement with this, followed by 18% who are somewhat in disagreement and finally 6% who are in disagreement. Thus, it can be determined that most entrepreneurs are not sure that their brands have an emotional connection with their customers.

The highest percentage of entrepreneurs corresponds to 36%, who neither agree nor disagree that their clients feel identified with the brand's personality, the second group with the highest percentage belongs to the 30% present in the entrepreneurs, who consider being somewhat in agreement with this. There are 26% of the respondents, who state that they agree in this sense, and finally 8% of the entrepreneurs, who are something disagree. It can be seen how most entrepreneurs have doubts about whether their customers feel identified with their brand's personality, which may indicate that this attribute is not properly managed, it can be seen that the group with the highest percentage belongs to 42%, in which they neither agree nor disagree that their clients feel identified with, the second group with the highest percentage belongs to 30%, present in the entrepreneurs who consider to be somewhat in agreement with this. There are 26% of the

respondents, who agree in this sense, and finally 8% of the entrepreneurs, who are somewhat in disagreement. It is observed that a large part of entrepreneurs expresses knowledge about brand management, but even so, they are not sure that their brands have a personality that connects with the emotions of their clients. Most entrepreneurs consider that in some way they do have good brand management, followed closely by another group that is not sure about this, which may indicate that although there may be knowledge about the subject, there may also be certain shortcomings that prevent you from applying this correctly. As seen in figure 6, the highest percentage of entrepreneurs corresponds to 36%, which somewhat agree that they have good brand management; the second-highest percentage group belongs to 30%, who are not either agree or disagree with this. There are 14% of the respondents who agree in this sense, 12% who say they disagree and 8% of the entrepreneurs who agree somewhat with this, the group with the highest percentage belongs to 32%, who somewhat agree that their brand has defined values, the second group with the highest percentage belongs to 30%, who agree with this. There are 18% of those surveyed, who say they do not agree or disagree in this regard, followed by 12%, who say they somewhat disagree, and finally, 8% of the entrepreneurs who disagree with this. In this aspect, most entrepreneurs recognize that their brand has some defined values.

Relevant aspects in the construction of the Lovemarks

According to the results, the entrepreneurs do not know about the Lovemarks, nor how one can be built. On the other hand, despite this lack of knowledge, the participants stated that they know about brand management. However, this knowledge may not be sufficient or it may not be applied correctly, since most entrepreneurs are not sure they have good brand management. This is also related to other indicators of the person-brand relationship, such as emotional connections and identification with the brand personality. In this regard, it can be seen that these brands are not sure that they have been able to create emotional

connections as expected from a potential Lovemark, nor that they have managed to make their customers feel identified with their brand.

On the other hand, there are aspects that can be positive for these brands in their process to become Lovemarks, since most of the entrepreneurs expressed that their brands have a visual identity and defined values; however, it depends on the quality and coherence of these that can reach favorable results for the construction of a strong relationship between customers and the brand. In addition, the majority of entrepreneurs affirm that they follow norms and behaviors that are aligned with the values and personality of their brands. However, this may be affected by the fact that customers do not feel sufficiently identified with them.

With respect to this, it can be affirmed that the main aspects that must be improved in the brands of the studied ventures are focused on the construction of an effective brand personality, which allows customers to feel identified with it, as well as to developing emotional connections with these people.

Strategies within brand management

This study addressed how the entrepreneurs of the MUEVE foundation manage their brands and their knowledge about these processes to convert these brands into Lovemarks. However, it was not studied in detail how these ventures manage each component of brand management, both in its tangible and intangible parts. Due to this, it is recommended to carry out studies that analyze how each part of the brands focused on entrepreneurship works. Some of the topics that can be taken into account for study are: naming, corporate identity, brand architecture, positioning, and visual identity and its subcomponents.

According to this, it would also be relevant to carry out a new investigation where the effect that can be generated by using these new strategies in the management of the brands of the studied ventures is evaluated, as well as the changes that can occur when aiming to convert these brands. at Lovemarks. From these investigations, an effective

methodology can be characterized that entrepreneurs can follow in order to have better results in their projects.

Conclusions

Love and respect for a brand can be used as an indicator to understand how customers will respond to different situations where their loyalty may be affected (Jabeen et al., 2022). For this reason, it is important to study the management of entrepreneurial brands and how this can affect the process of turning them into Lovemarks, taking into account that this is a positive point that serves as a support for the brand.

Through this study it was possible to recognize that many entrepreneurs do not know or do not give due importance to the management of the brands that identify their enterprises. This coincides with a high percentage of entrepreneurs who are unsure or deny that their brands have emotional connections with their customers, as well as personality, values and behaviors that promote good relationships between people and the brand. The strategic potential of the brand can be negatively affected if an approach based only on the operational is used which makes it challenging to innovate towards approaches that cover all the areas necessary to create strong relationships with people (De Noronha et al., 2017)

The most critical aspects that must be improved in the management of the brands studied are those related to the identification of customers with the personality of the brand and the emotional connections that it generates. In this sense, not complying with these indicators means that brands do not achieve the positioning required to retain customers unconditionally, unlike what is expected when a brand becomes a Lovemark.

Some useful strategies to understand the importance of brand development are texts that serve as a guide for these processes, as well as tutorials or exhibitions about these topics (Oshiro, et al., 2021). For this reason, the development of educational material is suggested, such as

basic guides on the construction and maintenance of brands, exhibitions open to entrepreneurs on brand management and its subcomponents, and refresher training focused on the current needs of brands. In this way, educating entrepreneurs is a good strategy to help them have a broader vision of what surrounds them and orient themselves towards innovation (Barroso et al., 2020).

This will significantly benefit enterprises' growth and recovery, since companies with a higher level of efficiency in their brand management manage to obtain a higher company value (Rahnman et al., 2018). In this way, it is possible that this also contributes to better communication and work with the professionals in charge of creating and managing these brands.

References

- Barrientos, P. (2020). Peru and socio-economic indicators and their relationship with the national Brand. *EAN*, (89), 91-112. <https://doi.org/10.21158/01208160.n89.2020.2820>
- Barroso, F., Santos, R. y López, M. (2020). Factors that affect the experience of entrepreneurship in university students. A study in a private institution in Merida, Yucatan, Mexico. *Nova scientia*, 12(24) 2020. <https://doi.org/10.21640/ns.v12i24.2223>
- De Noronha, I., Coca, J. y Morrison, A. (2017). Confused branding? An exploratory study of place branding practices among place management professionals. *Cities*, 66, 91-98.
- Fernandes, F., Cavalcante, M., Fernandes, L. y Marques, S. (2017). Lovemarks: Analysis of a restaurant brand by the Kevin Roberts model. *Studies and perspectives in tourism*, 26(4), 905-924.
- González, L., Chaparro, L., y Ortegón, L. (2018). Brand management in PYMES: flower sector, central savannah region. *Dimensión*

Empresarial, 16(2), 55- 72.
<https://doi.org/10.15665/rde.v16i2.858>

Hernández-Sampieri, R., y Mendoza, C. (2018). *Investigation methodology. The quantitative, qualitative and mixed routes*. México. McGrawHill.
<https://doi.org/10.1016/j.cities.2017.04.001>

Jabeen, F., Kaur, P., Talwar, S., Malodia, S., y Dhir, A. (2022). I love you, but you let me down! How hate and retaliation damage customer-brand relationship. *Technological Forecasting and Social Change*, 174, 121183.
<https://doi.org/10.1016/j.techfore.2021.121183>

Jahanvi, J., y Sharma, M. (2021). Brand respect: Conceptualization, scale development and validation. *Journal of Business Research*, 132, 115-123. <https://doi.org/10.1016/j.jbusres.2021.04.016>

Krishna, A., y Kim, S. (2021). Exploring the dynamics between brand investment, customer investment, brand identification, and brand identity fusion. *Journal of Business Research*, 137, 267-277. <https://doi.org/10.1016/j.jbusres.2021.08.039>

Lucero, P. (2017). The Brand Management System in the Leisure Sector and the Competitive Advantage Case Study: Club Amnesia (Ibiza - Spain). *Revista Investigación y Negocios*, 10(15), 171-185.

Mantovani, D., & Galvão, F. (2017). Brand priming effect on consumers' financial risk taking behavior. *Revista de Administração (São Paulo)*, 52, 15-25. <https://doi.org/10.1016/j.rausp.2016.09.002>

Oshiro, K. F., Brison, N. y Byennett, G. (2021). Personal branding project in a sport marketing class. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 28, 100308.
<https://doi.org/10.1016/j.jhlste.2021.100308>

- Palomba, A. (2021). Building OTT Brand Loyalty and Brand Equity: Impact of original series on OTT services. *Telematics and Informatics*, 101733. <https://doi.org/10.1016/j.tele.2021.101733>
- Rahman, M., Rodríguez-Serrano, M. Á., y Lambkin, M. (2018). Brand management efficiency and firm value: An integrated resource based and signalling theory perspective. *Industrial Marketing Management*, 72, 112-126. <https://doi.org/10.1016/j.indmarman.2018.04.007>
- Ramírez, M. (2021). How to position your business commercially and make it sustainable over time, through good management of your brands. Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (Indecopi).
- Río, J., Cardona, D., y Guacarí, A. (2017). Corporate social responsibility and brand building: a new look at management strategies. *Revista de Investigación, Desarrollo e Innovación*, 8(1), 49- 60. <https://doi.org/10.19053/20278306.v8.n1.2017.7370>
- Song, H., Wang, J., y Han, H. (2019). Effect of image, satisfaction, trust, love, and respect on loyalty formation for name-brand coffee shops. *International Journal of Hospitality Management*, 79, 50-59. <https://doi.org/10.1016/j.ijhm.2018.12.011>
- Sumba, R., Almendariz, S., Baque, C. y Aliatis, V. (2020). Entrepreneurship in times of covid-19: From traditional to electronic commerce. *Revista Científica FIPCAEC*, 5(4), 137-164. <https://doi.org/10.23857/fipcaec.v5i4.300>
- Wider, S., Von Wallpach, S., y Mühlbacher, H. (2018). Brand management: Unveiling the delusion of control. *European Management Journal*, 36(3), 301-305. <https://doi.org/10.1016/j.emj.2018.03.006>

The importance of applying digital tools in teaching and learning at bolivar state university (bsu).

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Introduction

Why is it important to apply digital tools in teaching and learning at Bolivar State University?, The importance of applying digital tools in the State University of Bolivar, is of vital importance because nowadays we are immersed in the development and application of new technologies that are a key part in the current tasks that are lived around the world, which has led us to live changes and evolutions more and more specific in our society, much more in the field of teaching and learning to focus and take advantage of the different specialized digital techniques and to develop the skills and abilities, that is to say the competences in the digital field of the

teachers of the Bolivar State University, which will allow us to obtain an education with efficiency, effectiveness, quality and excellence, implementing an education 2.0. Currently the digital development has evolved rapidly, and we have had to adapt and thus generate a cultural change in the institution, which has created a new technological era in the pedagogical application of the micro curricular contents of the subjects, through the different digital tools, which is transforming in a clear and profound way in a new "digital culture" in higher education institutions. BSU is using strategies that have allowed us to generate a new generation in the educational field through digital tools that allow us to include a new world of opportunities that we can and should take advantage of in our activities as professors.

Integration of ICTs and education

Education in Ecuador is governed by the Constitution of the Republic, which provides in its articles as follows:

Art. 352.- The higher education system shall be composed of universities and polytechnic schools; higher technical, technological, and pedagogical institutes; and music and arts conservatories, duly accredited and evaluated.

These institutions, whether public or private, shall be non-profit.

Art. 355.- The State shall recognize the academic, administrative, financial, and organic autonomy of the universities and polytechnic schools, in accordance with the objectives of the development regime and the principles established in the Constitution.

Universities and polytechnic schools are recognized as having the right to autonomy, exercised, and understood in a supportive and

responsible manner. This autonomy guarantees the exercise of academic freedom and the right to the search for truth, without restrictions; the government and management of themselves, in accordance with the principles of alternation, transparency and political rights; and the production of science, technology, culture and art. (...)" **Art. 356.-** Public higher education shall be free up to the third level.

Admission to public institutions of higher education shall be regulated by means of a system of placement and admission, defined by law. Free admission shall be linked to the academic responsibility of the students (...)"¹

Which determines that education constitutes a right for people who meet the requirements to be able to be professionals, since it constitutes a means for the empowerment of the individual.

Therefore, based on the autonomy that universities and polytechnic schools maintain in the academic field, they can generate different strategies, among them the articulation and development of society and technology as the main source to maintain a quality education.

Education is a life experience and the first job to face, and it must develop in the individual the skills for cultivation and training framed in a social environment, this task must be performed permanently throughout the life of the person (Castro, Guzman, & Casado, 2007).

It is necessary to emphasize that education is a process in which we constantly train ourselves, whose last stage is to establish ourselves as professionals, which is extremely important to be able to put into

¹ Registro Oficial 449 de 20-oct-2008. Última modificación: 13-jul-2011

practice the knowledge acquired, as well as to make known the results of teaching and learning during our professional life. Nowadays, students must learn to develop the knowledge and skills to demonstrate that they can be the best candidate in the working world.

For (Nakano, Garret, Vásquez, & Mija, 2013) determine that the current environment of changes typical of the XXI century, today not only thousands of people can access to a greater amount of information, but also, actively interact with their environment, creating, adapting, and sharing knowledge in real time. This allows better communication regardless of the distance, thanks to new technologies allow us to obtain greater participation among different users and thus we can confirm the integration of technology with education, so that users can participate through active participation, either synchronously or asynchronously in the classroom.

According to Suasnabas Pacheco, Avila Ortega, Díaz Chong, & Rodríguez Quiñonez, 2017 Digital ICT allows the creation of environments that integrate known semiotic systems and expand to unsuspected limits the human capacity to (re) present, process, transmit and share large amounts of information with less and less space and time limitations, almost instantaneously and with an increasingly lower economic cost. (p. 741).

It should also be mentioned that ICTs maintain a process by which a combination of means and methods of data collection, processing and transmission are used to obtain quality information. On the other hand, it should be considered that with the passage of time technology has constantly evolved to the different changes, so we live in a new digital era that has provided to raise strategies in the different institutions.

Based on what has been expressed in the preceding paragraphs, it is of crucial importance to integrate ICT and education, indispensable processes nowadays that will allow linking pedagogy with technological tools, which leads to the development of teachers' competencies.

ICTs in academic training provide a constant development as they have a significant impact on education, due to this arises the need to include study programs so that students and teachers have the necessary skills and knowledge to take advantage and use ICTs appropriately. (Urighen Aguirre, Vega Jaramillo, & Luna Romero, 2020).

From the above, it is seen the constant need to keep integrated technological tools with education, thereby generating new trends in the educational field since nowadays the constant changes have forced us to develop strategies to articulate ICT with education.

At Bolivar State University the articulation of ICT and education is evidenced, as a strategy of application and determination of the importance of applying digital tools in teaching - learning, as this shows that the University fulfills the substantive functions including academia, research and linkage, which will allow the UEB to use the skills and abilities in the area of information technology and apply it to education through a digital pedagogy that will achieve the strategic objectives and mission of the BSU.

Development of digital competencies for teachers

According to (Alles, 2006), the term competence refers to the personality characteristics, converted into behaviors, that generate a successful performance in a job. Each job position may have different characteristics and/or different markets.

To fill any kind of position requires some proportion between knowledge and competencies. The type of knowledge and competencies will vary from position to position, from organization to organization (Gavilanez Cárdenas, Llumiguano Poma, Alvarado Pacheco, & Chávez Chimbo, 2020).

Likewise, it is determined that digital competencies are conceived as the set of knowledge, skills and attitudes required to identify, access, manage, analyze, integrate and evaluate digital resources; build new knowledge based on different media and information sources; and communicate and collaborate with others, effectively, critically, creatively and ethically, in the context of specific situations (work, personal and professional development, learning, leisure, participation in society, etc.) (Nakano, Garret, Vásquez, & Mija, 2013). (Nakano, Garret, Vásquez, & Mija, 2013). We must consider that on occasion competencies are innate and that there is another percentage in which it is evident that people can create, form competencies all depend on the willingness to want to learn and acquire a new skill, ability that in our working life is going to be reflected in our working day.

It should be added that, to achieve this correct and effective use of ICT, we must focus on the development of digital competencies in teachers, which framed in the educational environment generate an appropriate relationship of ICT use, along with the development of didactic and methodological skills that integrate their use in education and technology. (Zavala, Muñoz, & Lozano, 2016). That is to say that universities and polytechnic schools should be strengthening digital competencies in teachers and apply them with pedagogy, thereby generating new methods and tools to be used to continue fostering the digital competencies of the teaching staff of each of them.

It should be mentioned that the Ecuadorian Organic Law of Intercultural Education, in its article 6, letter j, referring to the obligations of the state, establishes that it is the right of the state: "to guarantee digital literacy and the use of information and communication technologies in the educational process, and to propitiate the link of teaching with productive and social activities". (OLIE, 2012). This means that the substantive function in the academic area of the State University of Bolivar is applying what is stipulated in the OLIE, since constantly prior to the beginning of each academic cycle they have been training the teaching staff and currently strengthening the digital competencies of both permanent and contract teachers, to keep the professionals trained and obtain better results.

It should be added that each person has different skills, some more developed than others, so it can be emphasized that skills can be acquired over time, for it is essential the willingness of the person to get new skills, which will keep them in their jobs. While it is true that there are professionals who are willing to acquire new skills, it is no less true that other professionals refuse to improve their abilities.

It is worth mentioning that the work of the teacher faced with the transforming vision of a society that needs the incorporation of ICT in the classroom has seen the need to transform them into an agent capable of generating the necessary competencies for a society with a "craving" for technological knowledge, and the frequent use of this in the different aspects of the student (Hernández, 2017, p 330).

For this it is necessary to consider the experience of each of the teachers when applying the knowledge acquired together with pedagogy and the use of digital tools, through this complement the

development of competencies in the use of ICT is evidenced, to continue training professionals in the different areas of specialty.

While it is evident that, (Nakano, Garret, Vásquez, & Mija, 2013), establishes that in current educational systems, it is essential to plan and develop a curricular itinerary that includes a strategy for the incorporation of ICT. In this sense, it is necessary, firstly, to build a solid discourse about their potential and methodological uses; and, secondly, to promote that the agents involved in the educational processes explore and experiment the use of various devices and applications so that they can evaluate the relevance of their incorporation in the teaching-learning processes. For this reason, it is important to always maintain a planning in the work environment because it will allow us to generate results of efficiency and effectiveness and even more so if it is aimed at developing the competencies of the professionals who are part of the educational institution.

While it is true that the teaching-learning process in the classroom, making use of ICT, requires a set of competencies that the teacher must acquire with the logic of adding a methodology capable of taking advantage of technological tools, where teacher training should be considered one of the first options before facing new educational challenges. (Hernandez, 2017)

On the other hand, it should be remembered that because of the pandemic in the month of March 2020 worldwide has allowed us to establish to the different organizations strategies to keep the institutions in operation, so it happened in higher education institutions a fundamental strategy used was the virtual classes to maintain with the fulfillment of the mission of the HEIs to train professionals in the different areas of specialty.

As a university it was possible to determine the importance of applying digital tools in teaching-learning, for this reason the authorities of such a prestigious institution from June 2020, developed and executed the training to teachers and contract teachers on the management of the use of the VTLE platform, it already existed when the face-to-face classes were maintained to support the work of the teacher. However, the pandemic forced teachers to use different platforms to continue teaching different subjects. Another important point is to highlight the training in the use of different digital tools to be implemented in virtual classrooms, including gamification, which is a learning tool that transfers the mechanics of games to the educational environment to achieve better results, verify the learning results obtained, as a feedback process.

Thus, the State University of Bolivar, with the purpose of continuing to develop the digital competencies of tenured and contract teachers, at the beginning of each academic period, maintains as a strategy the trainings both in the digital field and in the pedagogical field.

How ICTs have influenced teaching and learning

ICTs are tools that allow us to access unlimited amounts of information. For example, let's think of a book and a video, before we had limited information in terms of the pages of the books, and in the video to the length of the same. Let's also think of a library, in a library, no matter how many books there are, the amount of information available to which we can access is limited. However, today with the Internet, the amount of information that can be accessed and stored is infinite (Bautista Sanchez, et al. 2014).

In university education the application of teaching media and educational technologies offer new paths and possibilities to exploit; despite this, the incorporation of ICTs to pedagogical practices are still anchored to a worldview and conceptions about learning and knowledge that do not correspond to the pedagogical and epistemological advances achieved (Linares Canovas, Linares Canovas, Morales Lemus, & González, 2016). However, it is paramount and necessary to apply digital tools linked to the expertise and pedagogy used by teachers in Higher Education institutions and thereby demonstrate the results of teaching-learning in the process of training professionals considering each of the training areas generated by each HEI.

The use of ICTs in higher education training provides multiple advantages in the improvement of teaching quality, materialized in aspects such as access from remote areas, flexibility in time and space for the development of teaching-learning activities or the possibility of interaction with information by the different agents involved in such activities (Ferro Soto, Martínez Senra, & Otero Neira, 2009). For all this, higher education institutions must generate results of excellence in the teaching-learning process that will allow evidence of quality education by having highly qualified professionals, as well as participatory collaboration in the cultural changes proposed by the institution for the welfare and progress of a quality education.

For (Riascos Erazo, Quintero Calvache, & Avila Fajardo, 2009) states that the use of ICT in the university space allows the development of three elements: a) greater flexibility and interactivity, b) linkage with teachers and the rest of the student body, by allowing greater collaboration and participation, and c) ease of access to study materials and other complementary sources of information. The most important thing today is to indicate that ICTs have allowed

universities to adopt strategies that allow us to use different digital tools to strengthen the teaching and learning processes of students according to the curriculum in each area of academic training and despite the circumstances continue to provide quality education.

In the same way we can refer to the transformations and accelerated advances in the use of TICs, including science, technology, and information that we are currently living and has originated a new context in the educational field, that everyday teachers and students must assume the several changes and challenges imposed by society and go updating our knowledge and skills.

In fact, the expansion of communication and information technologies has generated a digital era with the application of web 2.0 that allows the creation of virtual spaces and technological tools among them using ViBlogs, wikis, twitter, with which you can interact in a fast, dynamic, and innovative system with students who are more attentive because they dominate the technological media, and it is an advantage for the new mode of study.

As a university, new pedagogical virtual environments have been created, capable of establishing high quality education techniques, favoring social and financial progress, sustainability, as well as other priorities of society. The work of the teacher is and will be that of a learning facilitator, considering that nowadays it must be generated with interest, since the virtual or online modality does not allow to keep the attention of all students, we must always consider the perspective that students see teachers as friends, that is they are listened to which will allow us to develop that they acquire skills and abilities.

In a teaching-learning process, information and communication technologies play an important role as a support in the interaction

with didactic activities that integrate the visual, novel and interactive; it encourages the use of applications, platforms and social networks; it promotes new ways of teaching; it facilitates the search for information and communication, the development of practical activities of teaching such as videoconferences, which constitute a service that allows contacting a group of people through interactive sessions so they can watch and listen to a lecture.(García Sánchez, et al., 2017 p 135).

What leads higher education institutions to maintain innovative processes with the use of technological tools, at the same time we can verify that students are able to analyze, make decisions and master new areas of knowledge in an increasingly technological society and all thanks to the influence of ICT in teaching and learning. Thus, students are acquiring knowledge, abilities, and skills essential for their professional development.

For (Suasnabas Pacheco, Avila Ortega, Díaz Chong, & Rodríguez Quiñonez, 2017) information and communication technologies ICT can contribute to universal access to education, equality in instruction, the exercise of quality teaching and learning and the professional development of teachers, as well as more efficient management direction and administration of the educational system.

In other words, higher education institutions must maintain their technical team in the technological area, which has done a very extensive work, since they have been a fundamental part in the development of activities in the academic field. Keeping the systems updated, the platforms working normally despite the number of students and teachers using the platform, as well as the scarce economic resources that have arisen as a strategy that have

allowed to maintain the operation of the platform and continue training professionals.

For (Bautista Sánchez, Martínez Moreno, & Hiracheta Torres, 2014), the teacher must create and continuously seek new ideas and intervention strategies and teaching tools that help students make the most of their possibilities.

To this end, it is important to incorporate in the work of teachers the use of Information and Communication Technology tools in virtual classrooms, which leads to the use of new ways of accessing, generating, and transmitting information and knowledge, which is currently being developed in educational administration.

Conclusions

Ecuadorian HEIs have had to face drastic changes as a result of the pandemic, which has led to constantly update strategies in each of the Universities and Polytechnical Schools nationwide, considering the reality that we live in public universities in Ecuador has been very complicated, as each time the governing bodies have reduced the budget without considering that due to the pandemic education has become a virtual mode which has allowed HEIs to increase enrollment which has limited thinking to return in full to the face-to-face classes.

It should be added that universities have had to increase their investment in information and communication technology (ICT) tools and even more in teacher training to face the conditions caused by the pandemic in terms of study modalities.

The pandemic revealed the structural deficiencies of the Ecuadorian education system, showing the lack of preparation of

both the state and the HEIs to face unplanned and fortuitous circumstances; however, it allowed strengthening strategies to face the different changes and change the culture in each of the HEIs.

In short, the State University of Bolivar has seen the need and the importance of applying digital tools in teaching - learning, through trainings in the academic field, as well as in the digital field, it is important to mention that as a strategy the different trainings were planned prior to the beginning of the academic cycle in the period June - September 2020, in which the authorities have proceeded to strengthen the competences in the digital field of its teaching staff as well as the contracted teaching staff. The trainings were related to strengthen or generate knowledge and skills of UEB teachers in the use of digital tools in teaching - learning, to subsequently apply it in their subjects.

All this with the purpose of accomplish the strategic objectives and mission of BSU in the formation of competent professionals through its teaching, research, and outreach functions, while maintaining a quality education.

References

- Bautista Sánchez, M. G., Martínez Moreno, A. R., & Hiracheta Torres, R. (2014). El uso de material didáctico y las tecnologías de información y comunicación (TIC'S) para mejorar el alcance académico. *Revista Ciencia y Tecnología*, 193.
- Bautista Sánchez, M. G., Martínez Moreno, A. R., & Hiracheta Torres, R. (2014). El uso de material didáctico y las tecnologías de información y comunicación (TIC'S) para

mejorar el alcance académico. *Revista Ciencia y Tecnología*, 186-188.

Castro, S., Guzmán, B., & Casado, D. (2007). LAS TIC EN LOS PROCESOS DE ENSEÑANZA Y APRENDIZAJE. *Revista de Educación Laurus*, 220.

Castro, S., Guzmán, B., & Casado, D. (2007). Las Tic en los procesos de enseñanza y aprendizaje. *Laurus Revista de Educación*, 224.

Ferro Soto, C., Martínez Senra, A., & Otero Neira, M. C. (2009). Ventajas del uso de las tics en el proceso de enseñanza-aprendizaje desde la óptica de los docentes universitarios españoles. *Revista Electrónica de Tecnología Educativa EDUTECH*, 4.

García Sánchez, M. R., Reyes Añorve, J., & Godínez Alarcón, G. (2017). Las Tic en la educación superior, innovaciones y retos. *Revista Iberoamericana de las Ciencias Sociales y Humanísticas*, 135.

García Sánchez, M. R., Reyes Añorve, J., & Godínez Alarcón, G. (2017). Las Tic en la educación superior, innovaciones y retos. *Revista Iberoamericana de las Ciencias Sociales y Humanísticas*, 135.

Gavilánez Cárdenas, C. V., Llumiguano Poma, M. E., Alvarado Pacheco, E. S., & Chávez Chimbo, G. W. (2020). Formación de competencias desde la inteligencia emocional. *revista Dilemas Contemporáneos: Educación, Política y Valores*, 4.

Hernandez, R. (2017). Impacto de las TIC en la educación: Retos y Perspectivas. *Propósitos y Representaciones*, 333.

- Hernández, R. M. (2017). Impacto de las TIC en la educación: Retos y Perspectivas. 330.
- Herrera, A. (2015). Una mirada reflexiva sobre las TIC en Educación Superior. *Revista Electrónica de Investigación Educativa.*, 1-4.
- Linares Cánovas, L. P., Linares Cánovas, L. B., Morales Lemus, R., & González, Y. A. (2016). Las tecnologías de la información y las comunicaciones en el proceso enseñanza-aprendizaje, un reto actual. *Universidad Médica Pinareña*, 149- 162.
- LOEI. (2012). Ley Orgánica de Educación Intercultural. Quito, Ecuador: Registro Oficial Ecuador.
- Morales , A. (2013). Desarrollo de competencias digitales docentes en la educación básica. *Revista de Innovación Educativa*.
- Nakano, T., Garret, P., Vásquez, A., & Mija, Á. (2013). La integración de las TIC en la educación superior: reflexiones y aprendizajes a partir de la experiencia PUCP. *En Blanco Y Negro*, 67. Obtenido de <https://revistas.pucp.edu.pe/index.php/enblancoynegro/article/view/8936>
- Organización de las Naciones Unidas para la Educación, I. C. (1998). La educación superior en el siglo XXI, Visión y acción. *Conferencia Mundial sobre la Educación Superior*.
- Riascos Erazo, S. C., Quintero Calvache, D. M., & Ávila Fajardo, G. P. (2009). Las TIC en el aula: percepciones de los profesores universitarios. *Educación y Educadores*, 139.

- Suasnabas Pacheco, L., Avila Ortega, W., Díaz Chong, E., & Rodríguez Quiñonez, V. (2017). Las Tics en los procesos de enseñanza y aprendizaje en la educación universitaria. *Revista Científica Dominio de las ciencia*, 745.
- Urigen Aguirre, P. A., Vega Jaramillo, F. Y., & Luna Romero, Á. E. (2020). El uso de las TIC en el aprendizaje en la Universidad caso UTMACH. *UIDE. Universidad Internacional del Ecuador. Guayaquil*, 36.
- Zavala, D., Muñoz, K., & Lozano, E. (2016). Un enfoque de las competencias digitales de los docentes. *Revista Publicando*, 332.

**Awareness and implementation of good manufacturing practices
(bpm) in the central market of canton El Triunfo, province of
Guayas, online mode**

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Introduction

Good Manufacturing Practices arise as a response to serious and even fatal events related to the lack of purity, efficacy, and safety of food (Codex Alimentarius, 2009) and these play a fundamental role in people's lives since they provide the necessary nutrients so that they can carry out all daily activities. The World Health Organization (WHO) defines food as "any natural or artificial substance or product suitable for human consumption". Food "is any substance that provides the matter and energy necessary to perform our vital functions" (Codex Alimentarius, 2011). The first antecedents of the BPM date back to 1906 in the United States of America and are related to the appearance of the book "The Jungle" where the prevailing working conditions in the refrigeration industry of Chicago were described. This resulted in a 50% reduction in meat consumption and several deaths were prevented. Several years later, in 1962, the first guide to Good Manufacturing Practices was created, the same that has been modified until reaching the current BPM for the production, packaging, and handling of Food (Pando, 2012).

The link with society is considered a fundamental axis of higher education since it allows to facilitate the communication processes between the university and the social and productive sectors of the Country (Brito-Gaona. L, 2018). In this communication process the College of Industrial Engineering at Universidad de Guayaquil whose mission is to spread scientific knowledge through links with society, to strengthen the talent of the nation and the promotion of development professionally and ethically, in a sustainable framework (Universidad Guayaquil, 2021). Universidad Guayaquil is an educational institution with 153 years since its foundation, which contributes with professionals to the society.

The general objective of the project is to spread the knowledge of the students to those in charge of the sale and distribution of food products in the Central Market of Canton El Triunfo, province of Guayas in the use of Good Manufacturing Practices, through a training program in the online mode.

This project was carried out by the department of "vinculación" of the industrial engineering career through agreements between the GAD of the canton EL TRIUNFO and Universidad de Guayaquil. The project was oriented to the community of Canton EL TRIUNFO, specifically in the main central market of this place to implement good manufacturing practices (BPM), which allowed us to generate a situational analysis and an improvement plan for different sectors, one of them for the food sector (Secretaría de Agroindustria, 2018) (Guzmán H., 2009), to consume quality food. The first phase was carried out online for reasons of the COVID-19 pandemic through convenience sampling due to the difficulties presented by the pandemic.

A descriptive investigation was carried out which refers to the concrete interpretation of nature or current society and works with realities of the phenomenon or object of study (Sergio Gómez Bastar, 2012). The investigation is cross-sectional based on observation and prospective through a questionnaire (Fernando García Córdoba, 2004). The geographical scope was the Municipal Market of Canton El Triunfo, Province of Guayas. A questionnaire was applied in the 16 stands of the Market (meat, vegetables, seafood) taking as references articles of the ARCSA regulation (Arcsa, 2015) based on compliance with good manufacturing practices (GMP).

For the collection of data related to BPM, a dichotomous questionnaire with 38 questions based on the ARCSA regulations was designed. The variables were grouped into the following blocks: Sanitary facilities, equipment, and utensils, manufacturing hygienic requirements and personnel obligations, storage, distribution, transportation and marketing, quality assurance, and control. The responses were obtained from the interviewers and by a direct response from those responsible for the 16 locations surveyed.

The results obtained in the aspects of Good Manufacturing Practices obtained from the sampling of 16 participants are: Design and distribution of the cleaning and disinfection areas, it is found appropriate for its total cleaning with 81%. The installation provides facilities for hygiene staff with 81%. Notices or warnings have been placed in the vicinity of the sinks to the staff about the obligation to wash their hands after using the toilets and before restarting production work with 81%. Residues are frequently removed from production areas and is arranged in such a way as to eliminate the generation of bad odors so that they are not a source of contamination or a refuge for pests with 88%. It is validated that the

final product is at acceptable levels with 81%: It is maintained hygiene and personal care with 88%. All food handlers wash their hands with soap and water before starting work, each Once you leave and return to the assigned area, every time you use the toilets and after handling any material or object that could represent a risk of contamination for the food with 88%. Raw materials and supplies are stored in conditions that prevent deterioration, avoid contamination, and minimize its damage or alteration. In addition, if necessary, is it subjected to an adequate process of periodic rotation with 94%. Water used for cleaning and washing raw materials, or equipment and objects that come into direct contact with the food, is it made drinkable with 88%. For the placement of food, shelves or platforms located at a height that avoids direct contact with the floor 100%.

The present investigation was carried out virtually, in which calls were made to apply the checklist or questionnaire to those responsible for 16 local food suppliers of the Central Market of Canton El Triunfo. The first question that was: Is the establishment where food is handled (inputs and raw materials), outside the scope of any risk or alteration? whose result is worrying since 50% of the establishments surveyed do not comply with that. Risk factors may appear with the contamination of food products. According to the survey carried out, 44% of the premises are not protected from sources of insalubrity. It is necessary to establish these sources of insalubrity through an on-site investigation, there can be several and verify if there is a pest and vector control program since These generate risks and establish a favorable scenario for contamination and the spread of microorganisms in food.

The issue of infrastructure is important to apply the standard of good manufacturing practices, according to the survey carried out, 50% of the premises do not comply with having ceilings, false ceilings and other suspended installations that are not designed and built in a way that prevents accumulation of dirt or residue, condensation, leaks, mold formation, surface detachment and also do not comply with a cleaning and maintenance program, the infrastructure must reduce the possibility of external contamination entering the building (Alejandro Díaz - Rosario Uria, 2009). A total of 63% of the premises indicate that there are areas where there is a high generation of dust, both in the windows and other openings in the walls and the areas are not built in a way that minimizes the accumulation of dust or any dirt and that also facilitate cleaning and disinfection.

A total of 69% of the places surveyed express that there is no continuous and permanent training plan for all the personnel based on Good Manufacturing Practices, to ensure their adaptation to the assigned tasks. This is a problem since in the food establishments there is a high turnover of food handlers. Therefore, training is essential and permanent, the low number of trained handlers since there is no knowledge that translates into practices. It is essential to use strategies that engage the food handler, such as motivational and awareness talks.

A total of 63% of the premises surveyed do not have specific training programs according to their functions, which include standards or regulations related to the product and the process with which it is related, in addition, to procedures, protocols, precautions, and corrective actions to take when deviations occur. There are 44% of the premises surveyed that do not comply with defrosting processes under adequate controlled conditions of raw materials and supplies. This is key to avoid the development of

microorganisms. This is related to 44% of the premises do not comply with the necessary equipment for conservation, such as suitable refrigerators and freezers, for those foods that require special refrigeration conditions (Robert J. Price, Pamela D. Tom, and Kenneth E. Stevenson., 1995) or freezing.

It can be concluded that the analysis carried out in the 16 food supply stores surveyed in the central market of Canton El Triunfo does not meet the standard or the regulations of Good Manufacturing Practices in an integral manner. There are deficiencies in the establishments where food is handled (Supplies and raw materials) and are subject to some risk or alteration of these. The premises are not protected from sources of unhealthiness, the infrastructures do not comply with having ceilings, false ceilings and other suspended installations are not designed and built in a way that avoids the accumulation of dirt or residue, condensation, leaks, the formation of mold, surface detachment and also do not comply with maintaining a cleaning and maintenance program.

There was no continuous and permanent training plan for all personnel based on Good Manufacturing Practices, to ensure their adaptation to the assigned tasks. Specific training programs are not complied with their functions, which include standards or regulations related to the product and the process with which it is related in addition, to procedures, protocols, precautions, and corrective actions to be taken when deviations occur. They do not comply with thawing processes under adequate controlled conditions of raw materials and supplies. The premises do not comply with the necessary equipment for conservation, such as adequate refrigerators and freezers, for those foods that require special refrigeration or freezing conditions.

Within the objectives of the project, the problems in the handling and preparation of food were identified, and the consequences caused by the lack of BMP were analyzed. Due to Good Manufacturing Practices. It becomes a necessity for the central market of Canton El Triunfo to avoid foodborne diseases and the management of these is a commitment to the health and well-being of the population, offering food that is up to par. of needs in terms of quality and affordability. According to these results, training was provided on the current BPM regulations and the implementation of the regulations in the different jobs, and identification, feedback, and control brigades were formed so that they can act in the presence of events that are outside of the technical specifications of the BPM standards.

References

- Alejandro Díaz - Rosario Uría. (2009). *Buena Prácticas De Manufactura - Una Guía Para Pequeños Y Medianos Agroempresarios*. San José, Costa Rica: Instituto Interamericano De Cooperación Para La Agricultura.
- Arcsa. (2015). *Normativa Técnica Sanitaria Para Alimentos Procesados, Plantas Procesadoras De Alimentos, Establecimientos De Distribución, Comercialización, Transporte Y Establecimientos De Alimentacion Colectiva*. Quito: Arcsa.
- Codex Alimentarius. (2009). *Higiene De Los Alimentos. Textos Básicos*. Roma: Fao/Oms.
- Codex Alimentarius. (2011). *Manual Para Los Fines Del Codex Alimentarius*. Roma: Fao/Oms.

Fernando García Córdoba . (2004). *El Cuestionario: Recomendaciones Metodológicas Para El Diseño De Un Cuestionario*. México: Limusa.

Guzmán H. (2009). *Manual De Buenas Practicas De Manufactura, Seguridad Ocupacional Y Procedimientos Standares De Operaciones De Plantas*. Honduras: Universidad Zamorano.

Organización Panamericana De La Salud. (2016). *Manual Para Manipuladores De Alimentos*. Washington, D.C.: Organización Panamericana De La Salud.

Pando. (2012). *Elaboración De Un Manual Para La Implementación De Buenas Prácticas De Manufactura En La Empresa De Productos Congelados Tía Lucca*. Cuenca.

Robert J. Price, Pamela D. Tom Y Kenneth E. Stevenson. (1995). *Como Asegurar La Calidad De Lo Alimentos Siguiendo El Sistema Haccp*. California: Sea Grant.

Secretaría De Agroindustria. (2018). *Guía De Buenas Prácticas De Manufactura Para Servicios De Comida*. Buenos Aires: Secretaría De Agroindustria.

Sergio Gómez Bastar. (2012). *Metodología De La Investigación*. México: Red Tercer Milenio S.C.

Universidad Guayaquil. (2021). Misión Universidad De Guayaquil. <https://www.ug.edu.ec/nosotros/>

Contribution to the Maternal Health strengthening in Loja, Ecuador

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Introduction

Prenatal control is important even in healthy pregnancy conditions. Regular controls help identify patients with higher risk in both obstetric and perinatal stages. They add to interventions associated with the prevention of those risks and they also contribute to promote healthy behavior during pregnancy. (Aguilera S. S., 2014).

Therefore, primary prevention has an important value in materno-fetal health whose aim is to avoid illness; secondary prevention, whose main objective is to detect any illness when it has already appeared and stop its progression applying therapeutical measures; and tertiary prevention, whose purpose is to restore health after illness appearance. (SEGO, 2010). All these actions are carried out in the doctor's appointment and the prenatal control.

One of the objectives of the World Health Organization -WHO, is to reduce maternal death rates which establishes the goal of reducing it to less than 70 for each 100,000 live births. (Miranda,

2019). This demands a great effort and compromise from the Government, the health professionals, and the community as well.

Maternal mortality represents a real public health problem in a way that these indicators allow not only to evaluate the health services offered to women during pregnancy, delivery, post-delivery, but also turn out to be meaningful to evaluate the degree of development of a country; thus the importance to develop programs and implement research to fight maternal mortality. However, this is not enough because maternal mortality high rates are still present in Latin-American countries. Taking into account that maternal-infant mortality, besides being determinant in measuring the health conditions of a country's population, it reflects the real meaning of losing a mother while giving birth. (Botell, 2018).

During the last decade, the Public Health Ministry and the National Health Council in Ecuador have implemented the Accelerated reduction of Materno-Neonatal Mortality Plan together with a group of policies and strategies meant to reduce the high rates. (Kirby, 2015). The Well-Being 2013-2017 National Plan established broad objectives in order to reduce maternal mortality down to 50 deaths for each 100,000 live births for the end of 2017. (MSP, Coordinación General de Planificación, 2014), focusing on identifying the risk factors to avoid in order to work on those particular findings and, additionally, work in the application of social programs on sexual and reproductive health.

Likewise, all the above mentioned plans are in accordance with the National Plan for Development, 2017-2021, called "A Whole Life" ("Toda una Vida" in Spanish) whose objective number 1 establishes: "Guarantee a worthy life with equal opportunities for every person," This National Plan has as one of its main goals for the year

2021: "Reduce maternal mortality causes from 44.6 to 36.2 deaths for each 100,000 live births," "Reduce unexpected pregnancy," and "Eradicate the materno-infant HIV transmission in children up to 18 months old.". At the same time, this plan specifically establishes the following goals on teen issues: "Reduce from 76.5% to 63.5 % the rates of live births from teen mothers between 15 and 19 years old," and "Reduce birth rates in teens between 10 and 14 years old for each 1,000 women" (Senplades, 2017). These actions and strategies implemented have helped, in one way or another, to reduce maternal mortality rates in our country; In this way, for 2016, the under-reported maternal mortality rate was of 20.2%, and the no-well defined or ignored mortality causes rate was of 7.2% (Cruz, 2019).

Having the need to create local strategies that contribute to reduce maternal mortality rates even more, the Maternal Health Strengthening Project at the University Center of Motupe, together with the Public Health Ministry, have set the goal to contribute to the improvement of the integral health in women at gestational age; identifying the obstetric risks; improving the quality of prenatal control programs through home visits so that they could have a relaxed and integral family and community environment; taking protection actions, health promotion, and illness prevention, as well as communicating the program strategies and policies. All this, with the participation of all University Medicine Major stakeholders: professors, students, professionals, and Public Health Ministry officials assigned at the University Center of Motupe.

The University Center of Motupe (Type A), through an institutional agreement plan between Loja National University and the Loja Province Health Office, keep an assisting academic and service space with the participation of their personnel in addition to their technical-administrative contributions.

The application of the project started in 2018 in neighborhoods inherent to the above-mentioned actors, the Loja National University and the Loja Province Health Office. It covers a total of 26 neighborhoods with an estimated population of 14,248 by 2017; 8,971 female and 5,277 male participants.

The project is of a participative intervention type, based on action research methodology that articulated health assistance, research, and academic training of the university students taking the Obstetrics subject in 9th semester. The students and the professors must comply with 90 academic hours of community work distributed in 18 weeks of work.

The students work the project activities under the guidance and tutoring of a Medicine professional who works at the Motupe University Center and, ultimately, will have the help of the Intern working at the corresponding Family and Community Shifts. Students will be assigned one to three patients and will be responsible of the integral health care of pregnant women; will take actions based on the Public Health Ministry guides and protocols; will make home visits to identify patients with obstetric high risk for their further control by the professor specialized in gynecology and obstetrics. This, with the purpose of diminishing the number of transfers to the second level hospital. Additionally, they will keep a detailed record of the fulfilled tasks in the corresponding forms for later presentation of weekly reports which will be backed by the doctors and the professors; at the end of the semester, they will turn in a report of the research, which, apart from being evidence of their fulfillment, will show their most human characteristics in their integral actions for the health of the community women,

As their activities will be evaluated and given a score.

The management of the project has been done the following way: RESPONSIBLE UNIT: Loja National University -Medicine Major Office; PROJECT DIRECTOR: Full Time, Associate Professor from the Medicine Major; COORDINATION UNIT: Motupe University Center/Community Service Coordinator; RESPONSIBLE PROFESSORS: Obstetrics Professors; FIELD TUTORS: Public Health Ministry Doctors assigned as Tutors by FSH Academic Authority, in fulfillment of the interinstitutional agreement.

The students have been trained in pregnancy prenatal control, natural delivery, and post delivery in accordance with the Public Health Ministry protocols implemented for primary medical care, and health service response capacity in relation to the expectant mothers' worthiness, culture, and privacy, as well as their rights.

In times of the Covid pandemics, during the academic periods April-September 2020, October 2020 – April 2021, certain guidelines were adapted in fulfillment of the project objectives, using technology and social networks (Facebook, Instagram) to inform about promotion and prevention activities (videos recorded by students and informative presentations) as well as WhatsApp groups to interact with the patients (expectant mothers) in order to reach them with diffusion messages informing the main warning signs, complications, and other situations that may appear during pregnancy, lastly, Telemedicine was implemented with the Loja National University specialized professors.

Methodologically, based on the information provided by the Public health Ministry , April 2018 – December 2019.

A significant increase in the number of primary and subsequent medical care actions in the months which the University students and professors' intervention, as can be seen in table 1.

Table 1. *medical care on pregnant women: primary and subsequent. Loja National University students and professors' intervention.*

MEDICAL CARE ON PREGNANT WOMEN AT MOTUPE UNIVERSITY CENTER							
WITH STUDENTS AND PROFESSORS' INTERVENTION				WITHOUT STUDENTS AND PROFESSORS' INTERVENTION			
OCASSIONS				OCASSIONS			
		PRIMARY	SUBSEQUENT			PRIMARY	SUBSEQUENT
		399	1039			267	646
Number months	of	12	12	Number months	of	9	9
Average /month		33,25	86,58	Average /month		29,67	71,78

The analysis in each academic period shows an increasing process of the Loja National University participation in the improvement of the pregnant women medical care as is shown in table 2.

Table 2. *Pregnant women medical care with the Loja National University Students' Intervention.*

WITH STUDENTS AND PROFESSORS' INTERVENTION		WITHOUT STUDENTS AND PROFESSORS' INTERVENTION			
PREGNANT MEDICAL CARE	WOMEN	PREGNANT WOMEN MEDICAL CARE			
PERIOD: MAY - AUGUST 2018					
MONTH/YEAR	PRIMARY	SUBSEQUENT	MONTH/YEAR	PRIMARY	SUBSEQUENT
MAY 2018	28	62	APRIL 2018	17	57
JUNE 2018	14	63	SEPTEMBER 2018	21	52
JULY 2018	19	61	OCTOBER 2018	32	67
AGUST 2018	25	59			
TOTAL	86	245	TOTAL	70	176
AVERAGE (MONTH)	21.5	61.25	AVERAGE (MONTH)	23.33	58.67
PERIODO NOVIEMBRE 2018 - FEBRERO 2019					

NOVIEMBRE 2018	35	86	OCTOBER 2018	32	67
DICIEMBRE 2018	32	82	MARCH 2019	35	90
ENERO 2019	45	102	APRIL 2019	36	71
FEBRERO 2019	25	88			
TOTAL	137	358	TOTAL	103	228
AVERAGE (MONTH)	34.25	89.5	AVERAGE (MONTH)	34.33	76.00
PERIOD: MAY - AUGUST 2019					
MAY 2019	37	104	MARCH 2019	35	90
JUNIE 2019	47	120	APRIL 2019	36	71
JULY 2019	44	116	SEPTEMBER 2019	23	81
AUGUST 2019	48	96			
TOTAL	176	436	TOTAL	94	242

AVERAGE (MONTH)	44,00	109,00	AVERAGE (MONTH)	31.33	80.67
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Source: Public Health Ministry. Sector 7 Coordination

During the last three years, the tendency remains the same; However, gynecologic and obstetric number shows a decrease.

Tabla 3. *GYNECOLGY AND OBSTETRICS REFERENCE AT MOTUPE UNIVERSITY CENTER SURING THE LOJA NATIONAL UNIVERSITY STUDENTS AND TEACHERS' INTERVENTION*

YEAR	TOTAL REFERENCES	OTHER REFERENCES	REFERENCES G-O
2017	939	778	161
2018	1066	893	173
2019	970	825	145

The medical care in gynecology and obstetrics have had a special incidence in its quality, in the local resolution of specific health problems, and in the users' well-being, as shown when the number of medical care occasions is related to the references executed.

Table 3. HOME VISITS BY THE LOJA NATIONAL UNIVERSITY STUDENTS

STUDENT %	N° HOME VISITS
29.8%	1 – 4
21,3%	5 -9
24,5%	10 y 19
9,6%	20 y 29
14,9%	30 y más

Source: Public Health Ministry. Sector 7
Coordination

100% of the students conducted home visits; 29,8 % of them with 1 to 4 visits; 21.3% between 5 and 9 visits; 24.5% between 10 and 19 visits; 9.6%, 30 or more visits. These results show considerable consistency. 100% of the students were assigned the responsibility of pregnant women medical care; 60.6% were assigned between 2 and 4 pregnant women; 23.4% were assigned 1 pregnant woman; 12.8% were assigned between 5 and 7 pregnant women; and, 8 pregnant women in minor percentage, showing agreement, 25% reports having performed activities related to child health; 23% with health care promotion; and 17% with the active search of possible pregnant women patients.

The activities carried out during the pandemics, besides of health care promotions, were of telemedicine with the participation of two

university doctors specialized in Gynecology and Obstetrics, 120 students in 9th semester, and 232 pregnant women who received attention through telemedicine.

Prenatal control is a group of actions that involve a series of visits by the pregnant woman to the health institution and its corresponding appointment, early detection of risks, prevention of complications, and preparing the patient for delivery, maternity, and bringing up of the child (Cáceres, 2009). The Public Health Ministry, taking into consideration the forementioned concepts, approved the Accelerated Reduction of Materno-Neonatal Mortality Plan which establishes as one of its operational pillars the implementation of the Obstetric Care and Neonatal Essential (CONE for its initials in Spanish) Network in the whole country. The strategy of Obstetric Care and Neonatal Essential (CONE), 2013 has as a purpose to ensure essential obstetric care for all women with the goal of saving lives and prevent morbidity.

With the above mentioned facts, it becomes necessary that the Public Integral Health Network has the capacity to detect the risky cases and provide timely and quality neonatal care under the norms and protocols issued by the Health Authority, because many deaths are proved to be preventable if the service network works properly. With this perceptible, it responds to the need of improving the number and the quality of the prenatal controls through home visits, with an integral approach inside the family and community environment, and above all, consolidate protection actions, promotion of health, and illness prevention.

Prenatal control is one of the most important medical services since it is considered a health program with larger coverage thanks to the integrative attention that it offers (Granja, 2018). It is an essential intervention in which different complications and risk signals are

identified. However, a more personalized follow-up program must be designed with pregnant women in high maternal or fetal risk. (Aguilera P. , 2014).

This work shows that, during the months the project was developed, a significant increase in the number of primary (399) and subsequent (1039) medical care occasions from the University students and professors. It becomes necessary to highlight that most of the pregnant women were in high obstetric risk which deserved specialized control. As a result of the data obtained from this study, a proposal emerges. This proposal demands the establishment of social strategies which allow to reach female population so that the number of users of proper and quality prenatal control can be increased. Even though, there are studies, like the one carried out by the IMSS Medical Journal regarding prenatal control, in which 47.6% of pregnant women had less than five appointments and were at the beginning of the third trimester of pregnancy stage (53.6 % cases y 46.5 % controls); 49.6% had more than five appointments and were at the beginning of the first trimester (16.1 % cases y 83.9 % controls). Neonatal mortality was evidenced only in 5.9% of the cases (seven deceased) and the proportion was similar for proper as well as for not proper prenatal medical care (Sanchez H, 2005). We are aware that prenatal control is key to determine the risks of the pregnant women, but there are possible weak points that make it difficult to provide a quality prenatal control, the lack of resources from the pregnant women to access prenatal controls, the low quality of the assisting programs, the high rate of maternal and perinatal mortality, and the lack of orientation, mainly in the aspects regarding delivery and birth. In the same way, the lack of qualified professionals and the lack of infrastructure for the provision of prenatal care service affect the quality of the pregnant women and their fetus, exposing them to avoidable risks (Cecagno, 2019).

The joint participation of first level of attention doctors that belong to Motupe University Center, operative unit type A and students and specialized professors from Loja National University made it possible to decrease the number of pregnant women referred to Gynecology and Obstetrics (2017: 161 - 2018:173 - 2019: 145); in comparison to other specialized fields. This required the imperative joint participation of the team intervening in the whole process of prenatal care, to decrease the modifiable risks and thus avoid referring cases to second level of attention hospitals. It also required to highlight the importance of the strategy of the Essential Obstetric and Neonatal Care (CONE for its initials in Spanish), whose fundamental aim is the coverage and successful resolution of cases with obstetric and neonatal complications that may expose the life and integrity of pregnant women and their newborn babies, in fulfillment of the MAIS-FCI and the application in the Public Integral Health Network according to the current regulations and dispositions (MSP, Norma para el Cuidado Obstétrico y Neonatal Esencial (CONE), 2013).

Within the levels of CONE, which adjust to the levels of attention of the MSP, outstands the communal, done at the First Level of Attention, and organized locally with the communities that join the health institution (Osorno, 2013). Therefore, it becomes important to mention that the present study has the home visits carried out by the students as an essential pillar (29,8 % of them with 1 to 4 visits; 21.3% between 5 and 9 visits; 24.5% between 10 and 19 visits; 9.6%, 30 or more visits) under the care of the Family Doctor from Motupe University Center. The home visits will allow the incorporation of students to the programs of the unit. They will also allow participants to get to know the regulations, manuals, guides, and protocols of the Public Health Ministry in practical actions. In addition, it will allow to take joint actions to strengthen the teamwork and the interprofessional practice. Finally, they will

incorporate the health perspective for an integral and integrated approach health-illness-care processes (MSP, (MAIS-FCI), 2012). Considering that the Health Primary Attention (APS – initials in Spanish) constitute the basis and first contact with the health system. (Troncosoa, 2021), the integral family and communal model of attention must follow the fundamental principles of integrity; This way, the home visits are a complement to reach those principles.

The Ministry Agreement No 0.01203 establishes that the Health Primary Attention be applied in all health institutions according to the population needs. It also establishes that the health area, represented by the Public Health Ministry, will promote scientific research and its integration with the assisting and teaching activities in all health institutions that make up the National Health System. Based on this integration, the responsibility of the care of pregnant women was assigned to 60.6% of the students, between 2 and 4 pregnant women; 23.4% 1 pregnant woman; 12.8% between 5 and 7 pregnant women; and, 8 pregnant women in minor percentage. With the purpose of determining risk factors that may be modified or controlled by the specialized professor doctor and activate the Reference and Counter reference System in strictly necessary cases that may not be possible to solve at the Motupe University Center. Among other activities that students performed, there were promotion activities, active search of pregnant women, updating of the speaking map, among others, taking into account that the provision of systematic promotion of health, before its conception promotes changes aimed at improving health and may be an opportunity to identify risk factors such as infections which may be treated before pregnancy begins (Whitworth M, 2009). Students also worked in the promotion of health (23% with health promotion) was used as a mediation strategy between the population and its environment, working on

the synthesis among individual choices and the society's responsibility in the health field (Alarcón, 2005). Considering that health promotion begins with people who are basically healthy, helping them to adopt life styles that allow them to make possible and keep a state of well-being (Green, 1988).

Telemedicine appointments are a safe and effective way to evaluate possible cases and guide the diagnose and the treatment of the patient, minimizing the risk of illness transmission.

During the pandemics, 232 pregnant women benefitted from the program. They received attention through Telemedicine, considering it an essential tool in benefit of the patients due to the difficulties in the health system because of the high demand for Covid-19 cases. In addition, there was the fear of possible Covid infection. (OPS, 2020).

Increasing coverage, number of controls, and the integral attention of pregnant women who lived in the covering area of the Motupe University Center, through home visits and other activities directed to the integral attention of pregnant women.

The resolution capacity of the Motupe University Center has considerably improved with the participation of Loja National University, through the professors specialized in Gynecology and Obstetrics and the students who perform promotional, preventive and help in the resolution of the problems. This resolution capacity has allowed the second level of attention centers to carry out the Reference and Counter reference System in strictly necessary cases to second level of attention centers, benefitting the population of pregnant women and their families living in the neighborhoods within the reach of the operational unit.

The promotion and preventive activities performed by the health

personnel from both the Motupe University Center and Loja National University, use health education as a tool, considered as a process of facilitation of desirable learning experiences through which the population are more aware of the health problems and becomes actively interested in it a growth process for the individual, through which they modify their behavior or their attitude as a result of the new experiences they have had.

References

- Aguilera, P. (Noviembre de 2014). Control Prenatal. *Revista Médica Clínica Las Condes*. Obtenido de [https://doi.org/10.1016/S0716-8640\(14\)70634-0](https://doi.org/10.1016/S0716-8640(14)70634-0)
- Aguilera, S. S. (Noviembre de 2014). Control Prenatal. *Revista Médica Clínica Las Condes*, Vol. 25.(Núm. 6.), 880-886. Obtenido de <https://www.elsevier.es/es-revista-revista-medica-clinica-las-condes-202-articulo-control-prenatal-S0716864014706340>
- Alarcón, L. (2005). Elaboración e implementación de un Programa de Educación para la Salud dirigido a la promoción y la prevención en adolescentes gestantes. *Revista Psicológica Científica*. Obtenido de <https://www.psicologiacientifica.com/adolescentes-gestantes-programa-de-educacion-para-la-salud/>
- Botell, M. (2018). La importancia de la atención prenatal en la prevención y promoción de salud. *Revista Cubana de Ginecología y Obstetricia*, 44(1). Obtenido de <http://revginecobstetricia.sld.cu/index.php/gin/article/view/305/231>

- Cáceres, F. (Mayo de 2009). El control Prenatal: Una Reflexión Urgente. *Revista Colombiana de Obstetricia y Ginecología*, 60(2). Obtenido de <http://www.scielo.org.co/pdf/rcog/v60n2/v60n2a07.pdf>
- Cecagno, S. C. (Octubre de 2019). Gestión de calidad en el prenatal: atención a las infecciones urinarias en un municipio de la Amazonia Legal. *Enfermería Global*, vol.18(No. 55), 377-420. Obtenido de <https://dx.doi.org/10.6018/eglobal.18.3.344971>
- Cruz, H. (2019). MORTALIDAD MATERNA EN EL ECUADOR: una mirada critica. *Plataforma por el Derecho a la Salud*.
- Granja, D. (2018). Promoción de cuidados en el embarazo para reducir la muerte materna. *UNIVERSIDAD SAN FRANCISCO DE QUITO USFQ*.
- Green, W. &. (1988). Educación para la salud.
- Kirby, M. P. (2015). Evaluación de los Cuidados Obstétricos y Neonatales de Emergencia en un Hospital Base del Sistema Nacional de Salud del Ecuador. *RevMédicaHJCA*, <https://goo.gl/TF5ENv>.
- Miranda, O. O. (Diciembre de 2019). Nuevos retos en la protección de la vida y salud de las mujeres. *Revista Peruana de Ginecología y Obstetricia*, 293-298. Obtenido de <https://dx.doi.org/10.31403/rpgo.v66i2184>
- MSP. (2012). (MAIS-FCI). *MANUAL DEL MODELO DE ATENCION INTEGRAL DEL SISTEMA NACIONAL DE SALUD FAMILIAR COMUNITARIO E INTERCULTURAL (MAIS-FCI)*. Obtenido de

http://instituciones.msp.gob.ec/somosalud/images/documentos/guia/Manual_MAIS-MSP12.12.12.pdf

MSP. (2013). Norma para el Cuidado Obstétrico y Neonatal Esencial (CONE). *Norma para el Cuidado Obstétrico y Neonatal Esencial (CONE)*. Obtenido de <http://salud.gob.ec>

MSP. (2014). Coordinación General de Planificación. *Informe Mortalidad en la Maternidad*. Obtenido de https://aplicaciones.msp.gob.ec/salud/archivosdigitales/sigobito/tareas_seguimiento/1121/MARCO%20TEORICO%20MODELO%20MORTALIDAD%20MATERNA.pdf

OPS. (2020). *Teleconsulta durante una PANDEMIA*.

Osorno, M. (2013). Atención integral de la embarazada en la Comunidad.

Sanchez H. (Junio de 2005). Impacto del control prenatal en la morbilidad y mortalidad neonatal. *Revista Médica del IMSS*.

SEGO. (2010). Protocolos Asistenciales en Obstetricia. *Sociedad Española de Ginecología y Obstetricia*.

Senplades. (2017). Plan Nacional para el Buen Vivir 2017-2021. *Planificamos para toda una vida*. Obtenido de www.planificacion.gob.ec

Troncosoa, J. G. (2021). Falta tiempo»: experiencias de médicos gestores de la demanda en la atención primaria de salud chilena. (Elsevier, Ed.) *Atención Primaria*. Obtenido de <https://www.elsevier.es/es-revista-atencion-primaria-27-avance-resumen-falta-tiempo-experiencias-medicos-gestores-S0212656721001931?referer=buscador>

Whitworth M, D. T. (2009). Promoción de la salud antes del embarazo para mejorar los resultados de las madres y los recién nacidos. *Cochrane*.

Importance of education for integral learning in Ecuador

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Introduction

This article seeks to understand how education began since colonial times in the country of Ecuador, with emphasis on the period after the decade of 1553 in order to answer the question: Has Ecuador's education system evolved? It has a descriptive emphasis, with a view to exposing the research object that evaluates the growth of educational demand from literacy to high school and universities based on information from national surveys and specialized organizations in education of CONESUP. The trends in the learning outcomes of the Ecuadorian educational system based on the evaluations carried out both the Ministry of Education and the Structure of the Regular Educational System have the following levels: Pre-primary, Primary, Middle, Higher and Compensatory Education. This work is the explanation of the academic journey, trying to move away from the apologetic visions of the studies of official institutions and visions that take a sequence of data and facts without establishing the connection between the aspects raised in the structure of the article.

Education in the Colonial Period

- First school in Quito, in 1553 called San Andrés; they also promoted higher education, founding in this city the first University called San Fulgencio in 1596.

- The presence of the Jesuits in Ecuador in 1568, they founded in Quito the College of San Luis in 1568, it was the first institution of this branch created in this city, and the University of San Gregorio in 1622, aimed to the formation specially of one group of people called "Los criollos".
- On July 18, 1822, it was necessary to check the curriculum followed both the University and the Colleges and the Constitutions that governed them, with the purpose of all literature branches be established, with the only one objective to satisfy the desires of the Government and the hopes placed in this country which yearns of prosperity and wellbeing.
- December 12, 1829, which contemplated the administration of the Universities, which gave strength to public instruction, in accordance with the Catholic religion that the Ecuadorian people had.
- August 25, 1835, authorized the Government to organize the total organization of the studies. Rocafuerte, issued on February 20, 1836, the organic decree of public education, which establishes the General Directorate of Studies and the Sub-Directorates and Inspectorates of Instruction: the first as a regulatory body and the second as instances in charge of complying with and enforcing the regulations.
- Education was to the service of political integration and social control, its pedagogical action brought with it the modern Catholic principles protected by the government.

- In the government of President García Moreno, in 1884 an important event occurred: the creation of the Ministry of Public Instruction with different teaching opportunities.
- Thus, the Constituent Assembly of 1897 approved a new Law on Public Instruction on May 29, 1897, establishing the primary education free and mandatory.

In 1950, Ecuador adopted new measures in development of the country, plans to expand public education, conceiving to create a contribution and social firmness. In education, the new thinking breaks paradigms constitutes the theory of the human personnel, and they carried out educational reforms with the acquisition of the professional system.

In 1960, an economic and practical way of education entered, a new reform was promoted at the primary and secondary level and the educational budget was increased in rural zones and technical areas. In 1964 it expanded rural primary education to 6 years, matching it with urban primary one. In secondary, the education was divided into a basic and diversified cycle.

Educational system

- The fundamental principles are revealed in three basic documents: the Political Constitution of the State, the Law on Education and Culture, and the Law on the Teaching Career.
- The Political Constitution of the State, in its Article 27, on Education and Culture, states: "Education shall be inspired by principles of nationality, democracy, social justice, peace, defense of human rights and shall be open to all currents of universal thought."

- With moral, historical, and social sense and critical capacity for understanding, with authentic national culture, human solidarity, and social and community action. Educational plans shall tend to the integral development of the person and society.

Structure of the Educational System

General Structure of the Educational Organization

The educational system corresponds to the principles of unity, sequential, flexibility and permanence; humanistic, investigative, scientific, and technical, according to needs, peace, social justice, and defense of human rights.

In Ecuador there are two educational systems: Ministry of Education and Higher Education. The ministry is compounded by two subsystems: schooled and non-schooled. The first one includes education provided in the establishments determined by the law and general policies. It includes, special regulations regarding with Hispanic and Indigenous Education, Compensatory Education, and Special Education.

Regular Education has the following levels: Pre-primary, Primary, Middle, and Higher. In the Compensatory Education the main objective is the equal opportunities, it means, everyone who has not finished their studies can do it later at any time of their life. Regarding to needs and aspirations it compounds the Primary Level, Compensatory Basic Cycle, Diversified Cycle. Training at the craft level, subject to the provisions of the Law on the Defense of the Artisan and its Regulations, classification of educational institutions, financing, private institutions, and others. Besides, morning, afternoon, and night schedule.

Financing education

According to article 71 of the Political Constitution of the State, it states that "No less than thirty percent of the current income of the central Government shall be allocated to education and the eradication of illiteracy in the budget." Regarding article 63 of the Education Act, it provides that "the budget given to education, may not be used or invested in any other necessity."

On the other hand, the re-evaluations of the PISA tests of 2017 show that in Ecuador "29% of 15-year-olds reached the minimum level of competence in Mathematics, 43% in Science, and 49% in Reading" (Torres, 2019) In other words, as mentioned by a PISA representative (Torres, 2019) "students in Ecuador are good at memorizing. Memorization is good for learning simple tasks. But as the task becomes more complex and requires problem-solving strategies, memorization does harm rather than help."

Pre-primary level: They develop psychomotor, intellectual and affective children of the preschool, which allow a permanent balance with their physical, social and cultural environment. Formation of habits, skills and elementary skills for learning.

Primary Level: To guide the integral formation of the child's personality and the development of intellectual, affective and psychomotor capacities, in accordance with their evolutionary level. It comprises six grades, of a school year, organized in three cycles:

First cycle: First and second courses, Second cycle: third and fourth courses, Third cycle: fifth and sixth courses, Middle level: Middle level education comprises three cycles: basic, diversified and specialization.

Basic Cycle: Basic general knowledge, allows the student to integrate and develop in family and social life, interact with them. Besides, provide the learner with a comprehensive orientation that allows the use of their potentialities, the development of a conscious attitude in decision making. Students in basic education, have to study during three years the different courses that contains.

Diversified Cycle: The diversified cycle seeks interdisciplinary preparation that allows the integration of students to the various manifestations of work and the continuation of studies in the post-baccalaureate cycle or at the higher level. This cycle aims to facilitate a humanistic, scientific, technical and labor training, which allows the student to develop in the individual, social and professional fields. Training in the diversified cycle lasts three years of study, which includes: Short post-basic cycle careers, with one to two years of study; and, the Baccalaureate, with three years of study. Short careers are systematic, post-basic cycle courses aimed at achieving, in the short term, practical occupational training.

The Baccalaureate prepares professionals of medium level, according to the requirements of the development of the country; offers a humanistic, scientific and technological training that enables the student to continue higher studies or to be able to function efficiently in the individual, social and professional fields, it is carried out in technical and technological institutes; it is intended for the training of intermediate level professionals, Bachelor of Physical Sciences, Chemical Mathematics, Social Biological, Technical Baccalaureate in Agriculture.

Education in Ecuador

Ecuador updates according to the needs of the world system and changes, but, more importantly, to growing concerns about the

education provided. Along the way there are certain adjustments, this occurred the educational projection with the socio-economic reality that is lived, one of the problems that education wants to eliminate is illiteracy, which, although it has decreased, percentage of illiteracy from 1950 to 1940, has decreased only by 32.5% that is to say less than 1% per year. Education in the Ecuadorian population has made progress in recent decades. But this improvement has not been the same for all Ecuadorians. The opportunity depends on the socio-economic status, residence, genre, age and ethnic status. The middle and popular sectors of urban areas were massively incorporated into the education system. On the other hand, the rural population, especially the peasant and indigenous population, still suffers from the lack of opportunities and resources to achieve adequate education, as shown by the following information.

Secondary level, it has a significant backwardness in rural areas compared to urban ones. In 1999, in the cities, 4 out of 10 people of legal age had completed their secondary education. According to SINEC, in our country there is a large number of students (94%), but there is a problem that there are few teachers and schools for this big number of students.

The quality of education has improved compared to the results of the 1962 census, in which only 5.4 per cent of the population had received incomplete secondary education, and only 0.5 per cent had a university education, Ecuador nevertheless lacks highly trained professionals and technicians, and that is why in many cases there is a need for millionaire hires to foreigners to perform these positions that need a certain degree of knowledge, moreover, this lack diminishes the development of our economy and of all national life.

The problem of national education depends to a large extent on the small budget allocated to education in Ecuador. The investment in education and culture from the general budget of the State and what it allocates for public debt service, we will realize that there is a great lack of support for the education sector. Our country has a high rate of illiteracy, especially in rural areas and in the most serious classes, with the reduction of the general budget of the State to the education sector.

(Jones, 2008) Higher Education Institutions and especially Universities and Polytechnic Schools play a very important role in the training of human resources of the highest level and in the creation, development, transfer, and adaptation of technology so that what they do to respond adequately to the requirements of modern society constitutes a strategic imperative for national development.

(Ynzunza Cortés & Izar Landeta, 2013) Universities and Polytechnic Schools are increasingly recognized as an instrument for the development of cities, regions, and countries, and they are considered a key factor in increasing competitiveness and quality of life.

The challenge for higher education institutions is to face a world in which productive systems are in permanent transformation. Changes in communications have changed the way time and distances are perceived, while opening up new perspectives for teaching and research.

According to the Law on Universities and Polytechnic Schools, the education provided in these institutions must be secular and free.

Higher Education Institutions

For (Espinosa et al., 2014) there is education that is taught in post-baccalaureate schools and in higher technical institutes; practically in charge of the specialization cycle of the middle level of regular education.

The post-baccalaureate schools prepare intermediate level professionals, according to national development; they offer a scientific and technological training that allows the student to join in a short time, the world of work.

Public universities give preference to the offer of careers in areas such as medical sciences, engineering and agricultural sciences; while private universities have a greater offer in areas such as administrative, social, and humanistic sciences. It means, in those linked to technology for the development there is a greater contribution from the state university, compared to a contribution in the administration and management of processes by the private university.

Supplement - Official Register No. 298 - Tuesday, October 12, 2010, Art. 23.- Guarantee of the financing of public institutions of higher education. - In accordance with the Constitution of the Republic of Ecuador and this Law, the State guarantees the financing of public institutions of higher education, which will be compulsorily included in the General State Budget that is approved each year."

According to (De La Cruz-Vargas et al., 2019) this information leads us to think about the urgency of rethinking the role of the

Ecuadorian university, based on a totalizing vision of national development, clearly identifying national, regional, and local needs and potentialities; in order to determine the policies of research, teaching and linkage with society in function of specific national tasks and objectives.

During the training of the student for (Mejía Mejía et al., 2019), it is necessary to consider some aspects that could change; one of them is the way how to choose a career. This is a decision that will support a lifestyle in the future and therefore it is necessary to provide attention with an appropriate methodology in order to get the optimal skill to choose a career to fulfill a professional life.

It requires commitment and dedication of the human who wants to undertake this path itself, that is, to think about what he wants to do, in the activities that he likes, besides, the work of knowing and informing himself about the activities he can do.

There are some aspects that does not allow students to choose the best career for them, such as, family, early work for necessity, social matters, etc. However, there are resources and tools that will help clarify the personal vision and as a consequence the professional and work perspective. Psychological or psychometric tests make it easier to detect interests, abilities, intellectual capacity and personality type; which are important factors for the optimal performance in the activity they do, what they like or would like to do that catches their attention. Sometimes, students have in their hands multiple opportunities to develop their education or abilities, however, most of the time they do not take advantage miss out on these opportunities, that probably may become in a profession.

References

- De La Cruz-Vargas, J. A., Correa-Lopez, L. E., Alatrística-Gutierrez de Bambaren, M. del S., Sanchez Carlessi, H. H., Luna Muñoz, C., Loo Valverde, M., Cano Cardenas, L., Gonzalez Menendez, M., Salinas Salas, C., Segura Nuñez, P., Alva Rodriguez, M., Morales Rezza, E., Castillo Velarde, E., Oshiro Kanashiro, S., Machado Nuñez, A., Sanchez Padilla, D., Chanduvi Puicon, W., & Roldan Arbieta, L. (2019). Promoting research in medical students and increasing scientific production in universities: Experience of the Undergraduate Thesis Workshop Course. *Educacion Medica*, 20(4), 199–205. <https://doi.org/10.1016/j.edumed.2018.06.003>
- Espinosa, H. R., Betancur, L. F. R., & Aranzazu, D. (2014). Alfabetización informática y uso de sistemas de gestión del aprendizaje (LMS) en la docencia universitaria. *Revista de La Educacion Superior*, 43(171), 139–159. <https://doi.org/10.1016/j.resu.2015.03.004>
- Jones, G. (2008). *Teoria organizacional*. Pearson Educación.
- Mejía Mejía, G. P., López Cabrera, M. V., Hernandez-Rangel, E., & Cerano Fuentes, J. L. (2019). Design of an assessment model by integrating immersive and remote technology. *Educacion Medica*, 20(3), 140–145. <https://doi.org/10.1016/j.edumed.2018.02.009>
- Ynzunza Cortés, C. B., & Izar Landeta, J. M. (2013). Efecto de las estrategias competitivas y los recursos y capacidades orientados al mercado sobre el crecimiento de las organizaciones. *Contaduría y Administración*, 58(1), 169–197. [https://doi.org/10.1016/s0186-1042\(13\)71202-6](https://doi.org/10.1016/s0186-1042(13)71202-6)

Determinants that influence microenterprise development in the commerce sector in the city of Guayaquil, period 2015-2020.

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Introduction

The creation of new companies and their survival, understood as the time that elapses between the incorporation of the company or the start of its activity and its closure, are factors that influence important aspects such as economic growth, competitiveness, innovation and job creation (Foster, Haltiwanger and Krizan (2001)Bartelsman, Scapetta and Schivadi, (2005)Haltiwanger, Jarmin and Miranda, (2013); Kantis and Federico, (2014); Gourio, Messer and Siermer, (2016)).

Among the theories studied in the literature on the dynamic phenomena related to the creation and destruction of companies, we find the theory of creative destruction proposed by Schumpeter (1942) and the learning processes developed by Jovanovic (1982), Ericson and Pakes (1995) and Pakes and Ericson (1998). The general idea is that new companies need to renew their processes and continuously increase their productivity to stay in the market. This, in turn, leads to less productive firms being driven out of the market, creating a constant dynamic that becomes the growth engine of an economy.

From the entrepreneur's point of view, the decision to start a business involves a multitude of aspects: the most important ones include credit availability, uncertainty, expected aggregate demand, phase of the economic cycle, expected profits, barriers to entry and exit, intensity of competition, etc. (Gourio, Messer, & Siermer, 2016). However, the same factors that influence the decision to start a business are largely the same as those that affect the likelihood that the business will survive over time. (Audretsch, 1995)

According to Ekos Magazine (2019) the commercial sector is characterized by the fact that its main activity is the wholesale and retail purchase of products of various lines, which can be focused on companies such as supermarkets, distributors, pharmacies, appliance stores, among others. Guamán (2016) considers that the companies in this branch are directly responsible for the purchase and sale of finished products for their trade. It can perform various forms of marketing, such as wholesale, retail and retail.

In Ecuador, 91.9% of the companies incorporated are classified as microenterprises, which generate 26.3% of the total number of jobs registered in 2020. The commerce sector is the second most important economic pillar of the country where 34.3% of the registered companies are dedicated to this economic activity, that

is to say, of the 846,265 companies registered in 2020, 290,269 companies are dedicated to this activity and it also represents 18.5% of the employment positions at the national level. (National Institute of Statistics and Census, 2021).

Despite this, according to INEC (2021) from 2012 to 2020 the commerce sector has been reduced with a decrease of 2.6 percentage points in the participation over its distribution in the economy, in which in 2012 its participation was 36.9% to 34.3% in 2020. At the level of Guayas, consulting the INEC database (2021) database, there are 67,565 establishments dedicated to wholesale and retail trade, which currently occupy 184,809 jobs. The methodology applied in the present research is qualitative, which focuses on the analysis and complete description of the phenomenon to be studied, either individually or collectively to answer the research questions and understand the factors that affect it. Through an indirect or non-interactive method by means of literary, documentary and bibliographic review, which implies searching, visualizing and maintaining the bibliography (references) and other useful materials for the purposes of the study, from which the relevant and necessary information must be extracted and collected to formulate our research problem. This review must be selective, since every year thousands of articles are published in scientific journals and periodicals, books and other materials on the various fields of knowledge around the world ((Hernández, et al., 2018) (Hernández, Fernández, & Baptista, 2014).).

To determine factors from the perspective of the areas involved, a primary qualitative study was conducted according to Table 1 with the following composition:

Table 1 *Sample composition*

Features	Size	Description
Entrepreneurs		With current ventures
Government	5	Fiscal level authorities
Academics	5	Members of the academy

Therefore, first a literature review will be conducted on some basic definitions that allow contextualizing microenterprise development according to Table 2:

Table 2. *Business Development Definitions*

Authors	Definitions
(Duarte, 2013)	It is a critical element in growth, especially in developing countries where it contributes to the strengthening of value chains.
De la O and Monge (2019)	"A growth associated with an increase in the number of skilled jobs and economic opportunities for

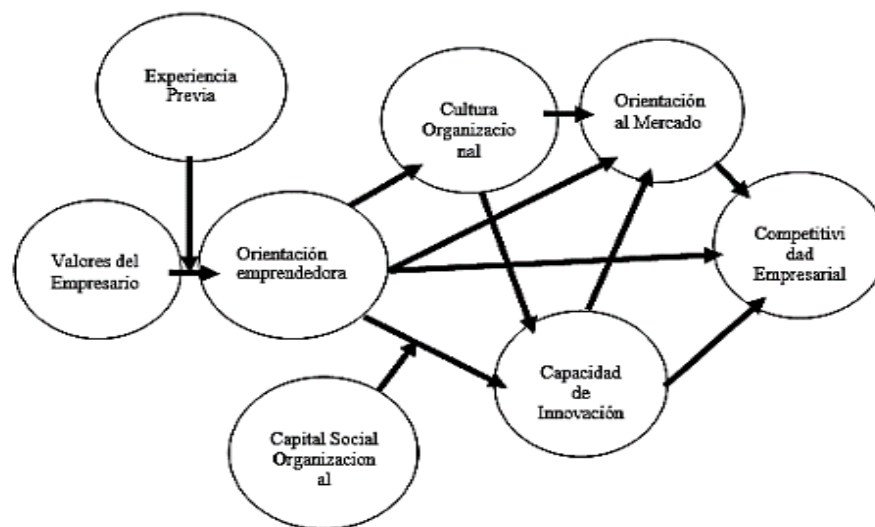
	the poor, as well as for women and youth".
Flores, Moncada and Boada (2020)	"Business behavior, with factors influencing the behavior of society per se; with respect to a product or service."
Fuentes, Osorio and Mungaray (2016).	The microenterprise sector finds in the fundamentals of the new approach to industrial economics and the Theory of Resources and Capabilities, specifically in intangible capabilities, the determining factors of competitive advantages, using as evaluation criteria the economic sector and the size of the company by number of workers.

Models of determinants in microenterprise development

Among the models proposed by some authors, the explanatory factors model of the conceptual model of business development is considered. (Mundaca, Huarachi, & Cervera, 2019).. Which considers Potential entrepreneurs, constituted, established and consolidated according to the GEM classification, are influenced by the family environment and / or by the real market opportunities that are presented to them. Family values influence the entrepreneur's values, which can have a negative or positive impact on the birth of a business, either by subsistence or by opportunity: traditional or dynamic. The entrepreneurial orientation induces

corporate values, corporate beliefs and business practices, which are the components of the organizational culture that guides the future enterprise.

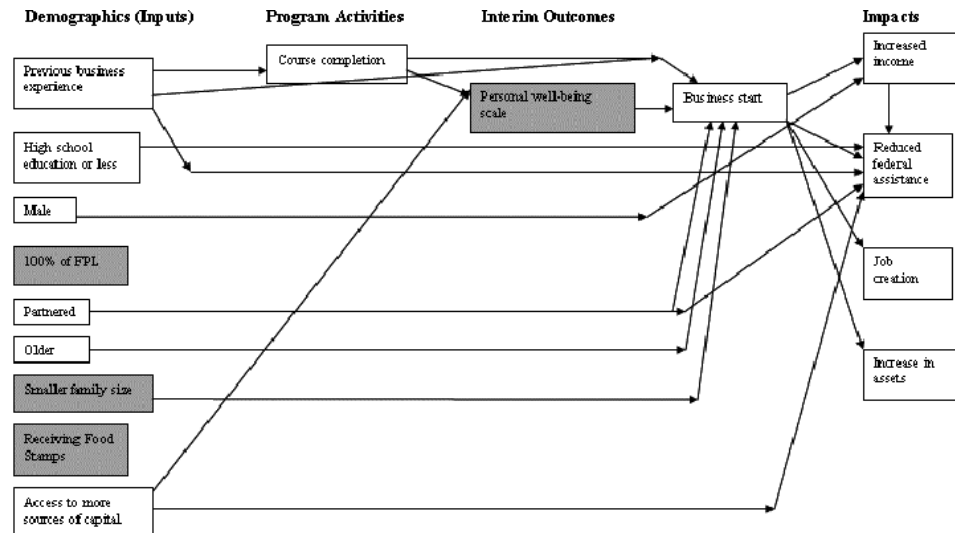
Figure 1. Model of explanatory factors of the conceptual model of enterprise development.



Taken from (Mundaca, Huarachi, & Cervera, 2019)

The conceptual model on the theory of success of a microenterprise development program proposed by Cranwell and Kolodinsky divides the model into four sections which are demographics, program activities, internal results and impact, where the authors determined that the factors related to previous business experience, added to training and a scale of personal well-being and access to greater sources of capital are strictly related to the increase of income in the enterprises, while other factors such as low quality of academic studies, age, small families are related to low attention or support from the government. (Cranwell & Kolodinsky, 2007)

Figure 2. Conceptual model of enterprise development



Taken from (Cranwell & Kolodinsky, 2007)

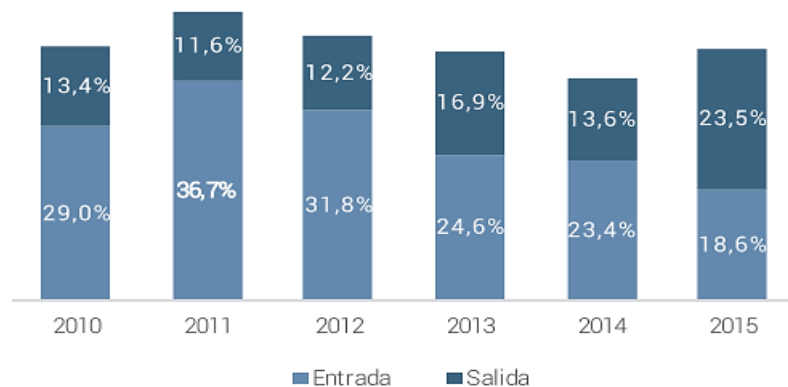
Analysis of business survival in Ecuador

According to the 2017 Labor and Business Panorama of Ecuador report by the INEC (2017) mentions that the performance of an economy not only depends on the inflow and outflow of companies, but also on how capable they are of subsisting over time. In this sense, this section provides a brief description of aspects linked to business demographics and analyzes the factors associated with the closure of companies in Ecuador.

The factors related to the survival of a company can be divided into three groups: factors related to the company itself, factors related to the environment and factors related to the entrepreneur's management capacity. The first group may include the size of the company at the beginning of its activities, profitability, productivity, indebtedness, innovation processes, human capital, advertising, investments in research and development, among others.

In the second group are factors such as the growth of the sector to which it belongs, the total growth of the economy, the level of concentration of the industry, the size of the industry, the geographical position, institutional factors, among others. Finally, the third group includes the characteristics of the entrepreneur, such as risk aversion, capacity to innovate, expectation of success, experience, age, among others, as mentioned by several authors (Disney, Haskel and Heden (2003) Arias and Quiroga (2008) Bates (2005) Ortega and Moreno (2005) Kantis & Federico, (2014))

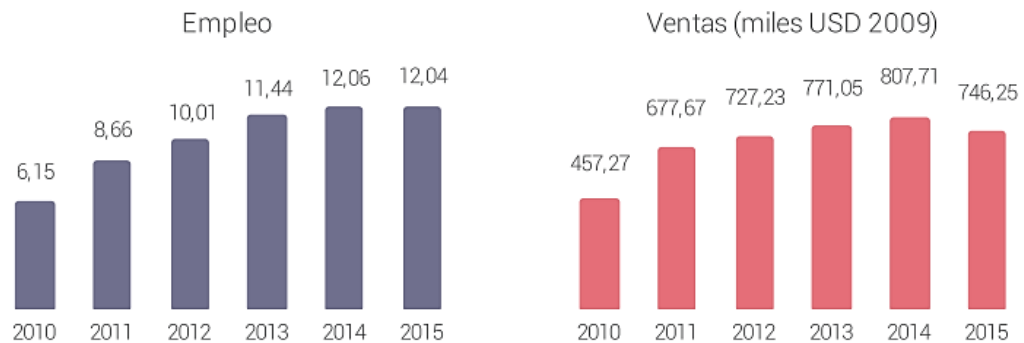
Figure 3. Rate of company entries and exits in Ecuador 2010 - 2015.



Taken from (National Institute of Statistics and Census, 2017).

According to the study conducted by INEC (2017) the companies that rotate the most in the market are those that are born smaller. However, those that manage to survive for a long time manage to acquire considerable importance in net job creation. In 2010, 11,236 companies were created, of which 49.8% remained in business until 2015.

Figure 4. Average employment and sales of newborns in 2010 surviving to 2015.



Taken from (National Institute of Statistics and Census, 2017).

For INEC (2017) the evolution of the average employment of the group of companies they analyzed, shows that the average employment has doubled from 6 to 12 employees. In 2015 it can be observed that the number of employees in these companies does not fluctuate with respect to 2014, which may be associated with the overall stagnation of the economy this year (with a GDP growth of only 0.16%), and the slowdown observed in previous years. For 2015, an outflow rate of companies for the commerce sector of 11.64% was evidenced, while an inflow or creation rate of companies was recorded for this sector of 24.16%. As main results of the research, it can be determined that according to the various authors cited in this paper, there is a strong correlation between factors such as the academic level of the entrepreneurs, their perspective, their previous experience, access to sources of capital and government support, as well as the formality of the business, which allows the development of microenterprises. At the level of Guayaquil, as Martillo mentions (2020) that the main factors are those related to preparation, communication and innovation within the businesses. Table 3 shows the determinants that are the common denominator in the micro-entrepreneur:

Table 3. *Factors influencing Microenterprise Development*

Medina and Rivera (2019)	They indicate that the success of microenterprise development lies in several factors such as trust and communication with staff, management skills (strategic planning, training and budgeting), and the academic level of the entrepreneurs.
Flores, Moncada and Boada (2020)	They point out that among the main impediments to microenterprise development are high interest rates for loans, lack of governmental opportunities, unfair competition, the various responsibilities associated with the formal management of a business and informal trade.
Lasio, Amaya, Zambrano and Ordeñana (2020)	They determined that the factors that promote entrepreneurship or create the entrepreneurial climate include finance, government policies, entrepreneurship education, ID distribution, business and legal infrastructure, internal market, physical infrastructure, and social and cultural regulations.
Fuentes, Osorio and Mungaray (2016)	They mention that the most important factors affecting business development are business promotion policies, access to financing, experience, academic level of entrepreneurs, corporate culture and business networks.
Hammer (2020)	He determined that the development factors are linked to the professional development of the owners or managers,

De la O and Monge (2019)	<p>the use of ICTs. On the other hand, failure factors are related to external agents such as interest rates, informal and unfair trade, and political and economic situations that alter the normal course of the country's economy.</p> <p>They showed that one of the determining factors in microenterprise development is related to the perspective or vision of the entrepreneur, and that the destabilizing factor is the environmental conditions that affect the market and its consumption habits. In addition, there is a disadvantage for entrepreneurs located outside urban areas, since they often cannot access the benefits of entities that provide support to SMEs, such as credit or training. And finally, the level of academic preparation of the entrepreneur which stands out for having more tools for evaluation and decision making.</p>
Thapa (2016)	<p>It mentions that the main development factors for microenterprises are related to performance, the entrepreneur, the environment and the company, where it evidenced that microenterprises led by women have a higher performance rate, the academic level of the entrepreneur influences, with greater organization and information management, entrepreneurs with administrative skills, microenterprises</p>

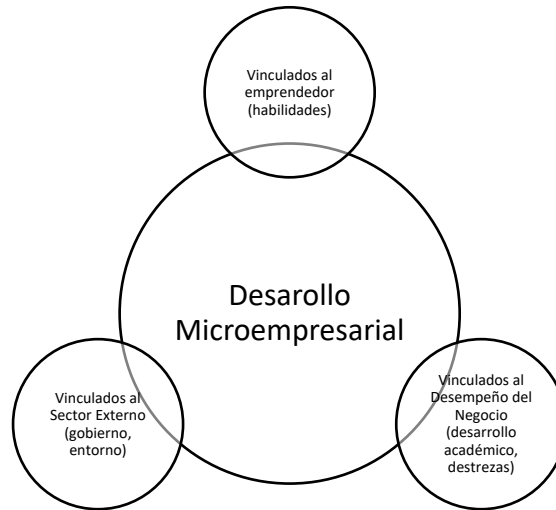
Mundaca, Huarachi
and Cervera (2019)

with a network of solid partners (commercial, institutional and family). They analyzed three categories, in which the first is related to entrepreneurial initiative and previous experience, which ensures better performance and survival of microenterprises, the second category related to organizational social capital and informality, where they highlight that informality affects the survival of the business, because it cannot access government aid for business improvement, and the third category related to innovation in value and business competitiveness in which businesses are oriented in the market in order to innovate and generate value, allowing their prevalence in the market.

Among the main factors affecting the development of microenterprises are informality, as well as external factors as mentioned by Lasio, Amaya, Zambrano and Ordeñana (2020) which affect market performance as well as consumer purchasing habits, and tax regulations or incentives, as well as the lack of support from the credit sector for microenterprises.

The results at the primary level of the respondents generate determinants that are congruent with previous studies and can be grouped into three main groups according to Figure 5:

Figure 5. Determinants identified by experts



Source: own elaboration

Although the factors that influence microenterprise development are related more to the professional, academic and psychological development of entrepreneurs, because the academic level, the perspective and the power of decision making and analysis, as well as the experience that entrepreneurs may have facilitates the development and permanence of their businesses in the long term (Martillo (2020) Flores, Moncada and Boada (2020); Fuentes, Osorio and Mungaray (2016); Cranwell and Kolodinsky (2007)), is also affected by other factors such as the development of skills that can be acquired while managing the business, such as administrative skills, document and information management, innovation or marketing (Lasio, Amaya, Zambrano and Ordeñana (2020) Medina and Rivera (2019)). However, it is necessary to emphasize that external factors also play a fundamental role in microenterprise development, since tax regulations, the granting of specific credits for these companies, as well as programs for training or the

promotion of entrepreneurship are a pillar that generates changes in the market by opening new jobs and also the movement of the economy.

However, on the other hand, the lack of government support and social, economic, technological and health disruptions, among others, cause changes in the market's consumption routine, making it necessary for both governments and entrepreneurs to adapt.

In Ecuador, in the private and public financial sector, there are special credit programs for the SME sector, such as the Corporación Financiera Nacional (2019) which has the PYME EXPRESS line of credit that finances both natural and legal persons under a prequalification scheme, and the PYME PROSPERA to finance projects of small and medium-sized enterprises. As of April 2019, the CFN through the National Guarantee Fund financed around 1435 micro, small and medium-sized enterprises with credits for an amount of USD 117 million and guarantees for USD 72.1 million.

In the private financial sector the various entities have some types of credits and microcredits for SMEs, the amounts range from \$ 3,000.00 to \$ 1'000,000.00 in the Banco del Pacifico (2020) from \$ 3,000.00 to \$ 200,000.00 at Banco del Pichincha (2020) for credits destined to the SMEs of the commercial sector. And credits of up to \$ 3'000,000.00 at Cooperativa de Ahorro y Crédito JEP (2020) for SMEs in the business sector.

Therefore, there are other factors to consider in order to understand and understand more about microenterprise development:

- What are the training programs offered by the State to SMEs?
- What are the tax and administrative incentives to reduce the informality of microenterprises?
- What are the difficulties faced by microenterprises in accessing external public or private financing in Ecuador?

Conclusions

It is concluded that the main factors that influence microenterprise development in the commercial sector of the city of Guayaquil can be classified according to the research into three classes: those inherent to the entrepreneur, which are related to skills, experience, academic preparation and attitudes; the factors that can be acquired in microenterprise performance, referring to all the skills and knowledge that entrepreneurs can obtain while developing their economic activities such as administrative skills, innovation, organizational culture, marketing and communication, research and development; and the contribution of external agents, i.e., the actions taken by the government and the private financial sector to support the business and microenterprise sector, all of which are part of microenterprise development, acting in an integrated manner to strengthen this business ecosystem.

References

- Arias, A., & Quiroga, R. (2008). Cessation of activities of SMEs in the metropolitan area of Cali (2000-2004): A Business Survival Analysis. *Cuadernos de Administración*, 21(35), 249-277. doi:ISSN: 0120-3592
- Audretsch, D. (1995). Innovation, growth and survival. *International Journal of Industrial Organization*, 13(4), 441-457. doi:[https://doi.org/10.1016/0167-7187\(95\)00499-8](https://doi.org/10.1016/0167-7187(95)00499-8)
- Bartelsman, E., Scapetta, S., & Schivadi, F. (2005). Comparative analyses of firm demographics and survival: Micro-Level evidence for the OECD countries. *The Journal of Regional*

Analysis & Policy, 14(3), 365-391.
doi:<https://doi.org/10.1093/icc/dth057>

Bates, T. (2005). Analysis of young, small firms that have closed: delineating successful from unsuccessful closures. *Journal of Business Venturing*, 20(3), 343-358.
doi:<https://doi.org/10.1016/j.jbusvent.2004.01.003>

Cranwell, M., & Kolodinsky, J. (2007). Microenterprise development programme success: A path analysis of factors that lead to and mediate client success. *Journal of Developmental Entrepreneurship*, 12, 47-69. doi:DO - 10.1142/S1084946707000551.

de la O, D., & Monge, R. (2019). Factors influencing the performance of SMEs: a qualitative perspective of Costa Rican entrepreneurs. *Academia & Negocios Journal*, 4(2), 95-106. doi:ISSN: 0719-7713 / 0719-6245.

Disney, R., Haskel, J., & Heden, Y. (2003). Entry, exit and establishment survival in UK manufacturing. *The Journal of Industrial Economics*, 51(1), 91-112. Retrieved from <https://www.jstor.org/stable/3569854>

Ericson, R., & Pakes, A. (1995). Markov-Perfect Industry Dynamics: A Framework for empirical work. *The Review of Economic Studies*, 62(1), 53-82. doi:<https://doi.org/10.2307/2297841>

Flores, R., Moncada, P., & Boada, M. (2020). Micro-entrepreneurial development in the city of Loja, from the socio-legal and marketing reality. *Sur Academia: Revista Académica-Investigativa De La Facultad Jurídica, Social Y Administrativa*, 7(14), 89-101. Retrieved from

<https://revistas.unl.edu.ec/index.php/suracademia/article/view/734>

- Foster, L., Haltiwanger, J., & Krizan, C. (2001). Aggregate Productivity Growth. Lessons from Microeconomic Evidence. *University of Chicago Press*, 303-372. Retrieved from <http://www.nber.org/chapters/c10129>
- Fuentes, N., Osorio, G., & Mungaray, A. (2016). INTANGIBLE CAPABILITIES FOR MICRO-ENTREPRENEURIAL COMPETITIVENESS IN MEXICO. *journal Problemas del Desarrollo*, 186(47), 83-106. Obtenido de <https://reader.elsevier.com/reader/sd/pii/S0301703616300244?token=9BA879C1A33D1136E284C94CE42845EAB8F102602E8EE2FAD6BB06A2770D88401CDB1BF6C1F93A97388CBE22B99F4AB1>
- Gourio, F., Messer, T., & Siermer, M. (2016). Firm entry and macroeconomic dynamics: State-level analysis. *American Economic Review: Papers & Proceedings*, 106(5), 214-218. doi:DOI: 10.1257/aer.p20161052.
- Guamán, N. (2016). *Estudio del impacto económico del aporte tributario de las PYMES del sector comercio durante el período 2010 - 2014 en la ciudad de Guayaquil, Provincia de Guayas*. Guayaquil: UNIVERSITY OF GUAYAQUIL. Retrieved from <http://repositorio.ug.edu.ec/bitstream/redug/13818/1/TESIS.pdf>
- Haltiwanger, J., Jarmin, R. S., & Miranda, J. (2013). Who creates Jobs? Small versus large versus young. *The Review of Economics and Statistics*, 95(2), 347-361. doi:https://doi.org/10.1162/REST_a_00288

- Hernández, A., Ramos, M., Placencia, B., Indacochea, B., Quimis, A., & Moreno, L. (2018). *METODOLOGÍA DE LA INVESTIGACIÓN CIENTÍFICA* (First ed.). Mexico D.F.: 3ciencias. doi:<http://dx.doi.org/10.17993/CcyLI.2018.15>.
- Hernández, R., Fernández, C., & Baptista, M. (2014). *Metodología de la Investigación* (Sixth ed.). Mexico D.F.: McGraw-Hill Education. Retrieved from <http://observatorio.epacartagena.gov.co/wp-content/uploads/2017/08/metodologia-de-la-investigacion-sexta-edicion.compressed.pdf>
- National Institute of Statistics and Census (2021). *Directory of Companies and Establishments 2020*. Quito: INEC. Retrieved from https://www.ecuadorencifras.gob.ec/documentos/web-inec/Estadisticas_Economicas/DirectorioEmpresas/Directorio_Empresas_2020/Boletin_Tecnico_DIEE_2020.pdf
- National Institute of Statistics and Census (November 3, 2021). *National Institute of Statistics and Census*. Retrieved from INEC: <https://www.ecuadorencifras.gob.ec//censo-nacional-economico/>
- National Institute of Statistics and Census (2017). *Panorama Laboral y Empresarial del Ecuador 2017*. Quito: INEC. Retrieved from <https://www.ecuadorencifras.gob.ec/documentos/web-inec/Bibliotecas/Libros/Panorama%20Laboral%202017.pdf>
- Jovanovic, B. (1982). Selection and Evolutions of Industry. *Econometrica*, 50(3), 649-670. doi:<https://doi.org/10.2307/1912606>

- Kantis, H., & Federico, J. (2014). *Entrepreneurial dynamics and dynamic entrepreneurship: Do they contribute to employment and productivity? The Argentine case*. Washington D.C.: Inter-American Development Bank. Retrieved from <https://publications.iadb.org/publications/spanish/document/Din%C3%A1mica-empresarial-y-emprendimientos-din%C3%A1micos-%C2%BFContribuyen-al-empleo-y-la-productividad-El-caso-argentino.pdf>
- Lasio, V., Amaya, A., Zambrano, J., & Ordeñana (2020). *Global Entrepreneurship Monitor*. Guayaquil: BABSON/KEF. Retrieved from https://www.espae.espol.edu.ec/wp-content/uploads/documentos/GEM_Ecuador_2019.pdf
- Martillo, A. (2020). *Factors that influence microenterprise development in the commercial sector of the city of Guayaquil*. Guayaquil: University of Guayaquil. Retrieved from <http://repositorio.ug.edu.ec/bitstream/redug/55332/1/ICT-149-2020-%20Martillo%20Agosto.pdf>
- Medina, G., & Rivera, M. (2019). *Factors that influence the development of microenterprises in the canton Durán*. Guayaquil: University of Guayaquil.
- Mundaca, J., Huarachi, J., & Cervera, M. (2019). Conceptual model of enterprise development for MSEs: Caso Centro de Desarrollo Empresarial. *Educare at Comunicare*, 7(2), 30-43. doi:<https://doi.org/10.35383/educare.v7i2.296>
- Ortega, R., & Moreno, R. (2005). Competitive strategies and business survival. *AQR Research Group - University of Barcelona*, 1-34. Retrieved from

<https://archivo.alde.es/encuentros.alde.es/anteriores/viiiiea/trabajos/o/pdf/ortega.pdf>

Pakes, A., & Ericson, R. (1998). Empirical implications of alternative models of firm dynamics. *Journal of Economic Theory*, 79(1), 1-45. doi:<https://doi.org/10.1006/jeth.1997.2358>

Ekos Magazine (March 5, 2019). *Ekos*. Retrieved from Ekos: <https://www.ekosnegocios.com/articulo/comercio-el-sector-mas-dinamico-de-la-economia-nacional>

Schumpeter, J. (1942). *Capitalism, socialism & democracy*. Routledge: Harper & Brothers.

Thapa, A. (2016). Microenterprise Development as a Poverty-Reduction Strategy in Nepal: A Multidimensional Analysis of the Factors Determining Microenterprise Performance. *PEDL Research Note*. Retrieved from https://assets.publishing.service.gov.uk/media/587f4c5ded915d0aeb000173/Research_Note_-_Microenterprise_Development_as_a_Poverty-Reduction_Strategy_in_Nepal_1.pdf

Analysis of the impact of google my business as a strategic marketing tool for microenterprises in the city of Guayaquil

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Introduction

The analysis of Google My Business as a strategic marketing tool in microenterprises in the city of Guayaquil, which I ING. Carlos Antonio Cobos Merchán, supervised by ING. Karla Maribel Ortiz Chimbo. MSc, creators of this investigation with which it is about the impact generated by the use of technology applied to the lowest level of the group of company classified by the number of size, served me to know the effect that generates this type of digital platform in the businesses, since at the present time we are in a very advanced technological culture, where the internet is a very predominant tool in the daily life in the people and in the activities related to the same ones, including in the commerce area it has been adapted almost completely to this type of activities. With respect to the main characteristic of the business with which it was created where sales were made in person to a totally different as it is digitally.

Such is the case that traditional businesses apply the internet to transform e-commerce where the entire transaction, dialogues between customer-seller is done through the web, given the case of having an online store allows you to contact the current list of customers that has the microenterprise and in turn the option of attracting new customers through Google My Business and digital Marketing, such actions can be performed through the internet.

It should be noted that the work is thinking about knowing the types of behaviors that have microenterprises on the subject of digital applications such as Google My Business, since; Its main function serves for the administration of the business in a virtual way, promotes the development of the business at microenterprise level, all this is a set of opportunities that businesses have to prosper and grow in current times, many of these practices are wasted for reasons of ignorance by their owners, or it comes the case that these activities prevent them from growing by persisting with the continuist model, since having years of antiquity still relying on the traditional way of selling or offering, do not see the opportunity and the advantage that gives the internet.

Talking about Google My Business as a very positive alternative to the use of these technological tools for microentrepreneurship, since being of digital process greatly simplifies the administration of the commercial establishment, being a 100% free platform helps the microentrepreneurial development, indicates (Serrano, 2018) "Increased visibility in searches: The interaction of users with the information and content we publish makes the "brand" of our library improve its web positioning organically" all thanks to the different search mechanisms that are present in Google, in addition to being able to find the business through Google Maps, products or services offered in the catalog, the offers currently available...

As expressed by (Barrera, 2017) "In small and micro enterprises, the use of the Internet and the development of e-Commerce is an opportunity, because it allows them to increase their ability to disseminate products, make remote sales and make their cost structure more flexible". The strategies applied to the marketing mix of the 4Ps, this type of properties are very important for the product and / or service that is being offered by the owner of the commercial establishment, in addition to that (Mejía Llano & López, 2019) indicates that "Digital marketing is essential for any company that wants to stay alive on the Internet and it is necessary to adapt and be constantly updated to keep up with the continuous technological advances that this medium undergoes".

Systematization of the Problem

- What is the impact generated by the use of Google My Business as a marketing tool for the development of microenterprises in the city of Guayaquil?
- How does the use of a functional marketing mix strategy using Google My Business influence the use of Google My Business?
- How does the lack of preparation or training in technological tools directly affect microenterprises?
- How does the preparation and training of human talent in microenterprises contribute directly or indirectly to marketing strategies?
- How does the scarcity of financial resources affect the use of technological tools as marketing strategies?

General Objective

- Analyze the impact of Google My Business as a marketing tool to contribute to the development of microenterprises in the city of Guayaquil.

Specific Objectives

- Determine how it affects the utilization of the functional marketing mix strategy using Google My Business.
- Explain how it directly affects the lack of preparation or training of technological tools.
- To evaluate the contribution of the preparation and training of human talent in microenterprises on marketing strategies.
- Identify how the scarcity of financial resources affects the use of technological tools as marketing strategies.

Justification

Theoretical Justification. - The process of a bibliographic research will be carried out in which the use of new marketing strategies and the use of Google My Business for the negotiations of microenterprises will be studied.

Practical Justification. - Microenterprises today must be modern, have a presence on the web or in social networks and be as much as possible at the forefront of technology, the internet is a key factor for this type of activity.

Methodological Justification. - Field research will collect the data required for the research process. Ecuador. - The present research is located in the Republic of Ecuador, northwest of South America with latitude 0° 00', its bordering area is: to the north with Colombia, to the east and south with Peru and to the west with the

Pacific Ocean. (Ministry of Foreign Affairs, European Union and Cooperation, 2019).

Guayaquil. - The city in constant development, both socially and technologically with its approximately 2'560.505 inhabitants, makes it the most populated city in Ecuador. (Guayaquil is my Destination, 2021)

Internet. - In Ecuador it mentions (ARCOTEL, 2020) "It has grown exponentially [...] an average growth rate of 8%, which is influenced both by innovation and technological development, as well as by government policies and strategies for connectivity and service provision". Guayaquil is a river city that takes advantage of this entrance to the main port of Ecuador,

Technological tools

Technological tools are of great utility at the institutional as well as organizational level. (DATADEC, 2018) "Technology can help companies increase the profitability of their business, improving the efficiency of their processes and positioning the company in an innovative climate capable of adapting to an uncertain future." (WordPress, 2021) "It is any "software" or "hardware" that helps to perform a task well, meaning by "perform well" that the expected results are obtained, with time savings and savings in personal and economic resources." (Open Study, 2021) "They are programs and applications that can be used by many people, easy to use and without the need to pay for it."

Google My Business

Great solution for companies wishing to enter the virtual world, according to. (Genwords, 2021) "It is a no-cost tool that allows to

increase the presence of companies on the web. Through GMB, a business can appear in the search engine and on Google maps", on the other hand the (Valencia Chamber, 2021) expresses "It allows us to create an informative profile of our company, store or any type of business, where we can post photos of products, publish events and even receive opinions, among many other functions". As it indicates (DigitalPro, 2021) "Currently 30% of local search clicks are directed to Google Maps results. Through optimization of the Google My Business profile" Finally, the next author (Rock Content, 2017) states that "Google My Business is a Google platform where entrepreneurs can disclose their business for free in the organic results".

Advantages of having Google My Business

One of the important advantages of having Google My Business is having the following features (Medium Multimedia, 2021)

- In Google the name of the business will be in the search results.
- Using Google Maps they can accurately locate your business.
- The business will show the most important and detailed information of the business, such as: hours, address, telephone numbers, qualifications, etc.
- It has APP to make management more efficient.
- Direct contact with customers Google Maps

According to (Ryte Wiki, 2021) "It is a service developed by Google with which you can find the exact location of cities, businesses, hotels or attractions on the Internet or through apps on your smartphone", further adding. (Google Maps, 2021) "It shows you

information about the places that interest you based on where you are looking and your previous searches."

Marketing

In marketing we can find a very fundamental assistance for the micro-entrepreneurial development that the company needs, according to (Mesquita, 2018) the definition of marketing "It is the science and art of exploring, creating and delivering value to satisfy needs of a target market with profit".

Neuromarketing

The science that studies people's behavior, as it states. (MásQueNegocio, 2020) "The decision-making process of consumers or potential consumers before they make a purchase, while they are making a purchase, and afterwards."

Marketing strategies

It is a very important action for the company; since, according to (Sordo, 2021) indicates that "It serves to communicate and position the products and services of a company, and translates into operational lines that allow reaching a target market through the appropriate channels".

Geomarketing

Marketing as a means of localization towards customers, taking advantage of Google Maps service this act becomes more simplified.

Marketing mix

This practice mainly helps the business which are established by actions of strategic type to be able to promote the products and/or services boosting the sales that the company offers in the different and different zones. (Hotmart, 2021) the main characteristic of the marketing mix is the different options that are handled such as the 4Ps: Product (product), Price (price), Promotion (promotion), Place (distribution).

Descriptive type is mainly in charge of the population established within the research. (QuestionPro, 2021) It will be used in the present research work will be the method of Online Surveys type. "Instant results, you can see them in real time to follow up your research. A lower cost [...] to have your results in less time, instead of days, weeks, or even months". Use of the Likert scale, as he mentions. (Hammond, 2021) "The Likert scale is a field research method that allows you to measure an individual's opinion on a topic through a questionnaire that identifies the degree of agreement or disagreement on each question."

The People need or at least deserve the opportunity for their businesses to be present within the digital platform Google My Business and this is reflected in the results, this means that microenterprises see this opportunity for their businesses to take the digital course of Online mode. Distribution of the different degrees of satisfaction at a general level, it can be said that 40.63% approve of the use of Google My Business, while the lowest degree of satisfaction is 13.54%. Sum of the levels of positivism and negativism of the degree of satisfaction with the use of Google My Business taking into account the Likert scale. The most common is to have this basic essence of marketing many and emphatically most responded that yes, if they have this knowledge prior to

marketing strategies. Just the presence of marketing guarantees that other people can know about what you sell.

The continuity of this research is very important for the owners of their microenterprises, since it helps them to know the shortcomings that they have when setting up a new commercial establishment, whether it is their own business, a family business, etc. Errors will always be present if this type of observation is not taken into account, since this type of analysis allows the future or current microentrepreneur to apply these good techniques, so that the owner of the commercial establishment can grow together with his business, in addition to the fact that nowadays technology means development and in microenterprise terms it is very favorable for the company.

- *Impact on technological tools for post-confinement microenterprise development?*
- *Impact of the use of social media on virtual business development?*
- *Paid advertising: Solution, investment or failure for microenterprises?*
- *Is Google My Business an alternative for total digitalization in the commercial sector of the city of Guayaquil?*
- *Impact of personnel trained in technological issues, such as in digital marketing areas?*

Conclusions

The results obtained allowed us to conclude that the use of Google My Business as a strategic marketing tool for microenterprises in the city of Guayaquil is viable, since it allows the development of microenterprises within them. Potentiate the use of best practices and digital techniques for the definitive transformation of the

microenterprise business within the commercial sector of the city of Guayaquil. By means of a good marketing strategy that adjusts to the sales characteristics of the company, the microenterprise can experience a significant growth in its economic income. It was possible to denote the lack of commitment to Google My Business digital tools in microenterprises in the city of Guayaquil, but in turn a very practiced activity around marketing strategies.

References

ARCOTEL. (November 25, 2020). *Telecommunications Regulation and Control Agency*. Retrieved from www.arcotel.gob.ec: <https://www.arcotel.gob.ec/wp-content/uploads/2020/12/BOLETIN-NOVIEMBRE-2020-25-11-2020.pdf>

Barrera, G. (July 24, 2017). *Relationship of Training with Internet Adoption and E-Commerce: Differences among Microentrepreneurs in Chile*. Retrieved from Scielo: https://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0718-07642017000600008&lang=es

Valencia Chamber of Commerce (January 23, 2021). *Valencia Chamber of Commerce*. Retrieved from Master Digital Marketing Valencia: <https://www.mastermarketing-valencia.com/marketing-digital/blog/google-my-business-ayudar-negocio/>

DATADEC. (May 30, 2018). *Datadec*. Retrieved from Datadec: <https://www.datadec.es/blog/herramientas-tecnologicas-servicio-de-empresa>

DigitalPro (June 22, 2021). *Positioning in Google*. Retrieved from DigitalPro Web Strategy: <https://www.digitalpro.ec/servicios/seo-local-google-my-business/>

Genwords (June 22, 2021). *What is Google My Business*. Retrieved from GENWORDS: <https://www.genwords.com/blog/google-my-business>

Google Maps (June 30, 2021). *Google Maps Help*. Retrieved from Google Maps: <https://support.google.com/maps/answer/7576020?hl=es#null>

Guayaquil is my Destiny (June 28, 2021). *History of Guayaquil*. Retrieved from Guayaquil is my Destiny: <https://www.guayaquilesmidestino.com/es/content/historia>

Hammond, M. (June 7, 2021). *Likert scale: what it is and how to use it (includes examples)*. Retrieved from HubSpot: <https://blog.hubspot.es/service/escala-likert>

Hotmart. (March 30, 2021). *hotmart/blog*. Retrieved from hotmart/blog: <https://blog.hotmart.com/es/ecommerce/>

MásQueNegocio (August 17, 2020). *The experience is greater if it is shared*. Retrieved from MásQueNegocio: <https://www.masquenegocio.com/2020/08/17/que-es-tipos-neuromarketing/>

Medium Multimedia (June 29, 2021). *Google My Business*. Retrieved from Medium Multimedia: <https://www.mediummultimedia.com/que-es/google-mi-negocio-google-my-bussiness/>

- Mejía Llano, J. C., & López, A. (March 28, 2019). *Juan Carlos Mejía Llano*. Retrieved from <https://www.juancmejia.com/marketing-digital/estrategia-de-marketing-digital-herramientas-y-pasos-de-implementacion/>
- Mesquita, R. (July 23, 2018). *Rockcontent*. Retrieved from Rockcontent Blog: rockcontent.
- Ministry of Foreign Affairs, European Union and Cooperation (September 2019). *Directorate General of Communication and Diplomatic Information*. Retrieved from Directorate General of Communication and Diplomatic Information: http://www.exteriores.gob.es/Documents/FichasPais/Ecuador_FICHA%20PAIS.pdf
- Open Study (July 21, 2021). *Open Study*. Retrieved from Google Sites: <https://sites.google.com/site/openstudyhmm/herramientas-tecnologicas/tipos-de-herramientas-tecnologicas>
- QuestionPro. (September 10, 2021). *What is descriptive research?* Retrieved from QuestionPro: <https://www.questionpro.com/blog/es/investigacion-descriptiva/>
- Rock Content. (July 17, 2017). *rockcontent*. Retrieved from rockcontent blog: <https://rockcontent.com/es/blog/google-mi-negocio/>
- Ryte Wiki (June 29, 2021). *The Encyclopedia of Digital Marketing*. Retrieved from RYTE WIKI: https://es.ryte.com/wiki/Google_Maps

Serrano, J. (October 25, 2018). *CRUE Spanish Universities*. Retrieved from Rebiun: http://rebiun.xercode.es/xmlui/bitstream/handle/20.500.11967/234/Google%20My%20Business_JordiS_1.pdf?sequence=1

Sordo, A. (April 15, 2021). *Data collection: methods, techniques and instruments*. Retrieved from HubSpot: <https://blog.hubspot.es/marketing/recoleccion-de-datos>

WordPress. (July 21, 2021). *WordPress*. Retrieved from WordPress: <https://herramientastecnologicas.co/>

Fecal pollution in coastal marine ecosystems - the case of el Pelado marine reserve (REMAPE)

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Introduction

The beaches constitute leisure areas where various recreational activities are developed, generating well-being for residents and tourists alike (Vergaray et al., 2007). This allows economic revenues for its inhabitants, in addition to their income derived from local fishing. However, these coastal areas also stand as the outlet of

water bodies from high basins containing several kinds of pollutants, such as pesticides, agrochemicals, heavy metals, hydrocarbons derived from industrial activity (Jofre-Meléndez, 2015), as well as sewage, causing water and sediment pollution in bays, estuaries and other aquatic ecosystems located in the coastal margin.

One of the classic markers for assessing water quality is fecal coliforms, since they measure fecal pollution, and are often employed in the assessment of public health risks (Fernández-Rendón, 2013). Additionally, it is reliable as a surveillance parameter for developing countries, which present a high rate of gastroenteric and respiratory diseases (Pietri, 1983). It is estimated that more than 120 million cases of gastrointestinal diseases and more than 50 million with respiratory diseases (Badilla-Aguilar, 2019) are caused by domestic wastewater containing fecal coliforms and other pathogenic microorganisms.

The beaches are continuously subject to pollution processes due to incoming sewage. Moreover, as the world's population is steadily increasing, the demand for the use of beaches has also increased (Mejia, 2008). Therefore, the presence of fecal coliforms in seawater could become an indicator of the degree of bacterial contamination in primary contact recreational waters.

Sewage or untreated domestic wastewater contains many pathogenic bacteria and viruses such as streptococci, staphylococci, salmonella, shigella, vibrio, which are discharged into the ocean, posing a health risk due to the spread of infectious diseases if those wastewaters receive little or no treatment (Cortes-Lara, 2013). For instance, these germs can be easily transmitted to consumers of bivalve mollusks and swimmers on polluted beaches. Some microorganisms in receiving waters manage to survive in

sufficient concentrations, causing harmful diseases, such as typhoid, paratyphoid, gastroenteritis, hepatitis, and poliomyelitis (Delgadillo-Hinojoza & Orozco-Borbón, 1987). In this context, the Ecuadorian environmental legislation has established effluent guidelines and water quality criteria in the Ministerial Agreement 097A, Annex 1 of Book VI of the Unified Text of Secondary Legislation of the Ministry of the Environment (TULSMA). According to this standard, the maximum permissible levels (LMP, for its acronym in Spanish) of fecal coliforms for effluent discharges and surface water intended for recreational purposes through primary contact are 2000 and 200 MPN/100 ml, respectively.

El Pelado Marine Reserve (REMAPE) is a protected area in the province of Santa Elena and represents an important resort in Ecuador, where activities such as recreational diving, whale watching, boat rides, water skiing, kayaking, fishing, swimming, among others carried (Maldonado, 2019). On the contrast, few studies related to determining water quality using fecal coliforms have been presented from this marine reserve. In 2013, one of these studies determined that fecal coliform pollution levels in the dry season fluctuated between 31 and 115 MPN/100 ml, with Palmar and Bahía de Ayangué being the two sites with the highest concentrations of coliforms, with levels from 96 to 115 MPN/100ml respectively. Both sites are located on the coastal margin of the reserve. The least number of fecal coliforms was found in open waters far from the coast, in the surroundings of El Pelado Islet (Cárdenas-Calle et al., 2018). To evaluate the actual condition of marine pollution due to sewage in the El Pelado Marine Reserve, the presence of fecal coliforms was determined during the opening of beaches in times of COVID-19, considering the important tourist, easily accessed points.

Study Area

Five stations were surveyed in the El Pelado Marine Reserve (REMAPE) during 1 to 17 of February in the 2021 in the Santa Elena province: the Estero de Valdivia (S 1° 56' 19.51"- W 80° 43' 33.292"), San Pedro (S 1° 56' 47.525"-W 80° 43' 37.363"), Cumbres de Ayangué (S 1° 59' 44.347"-W 80° 44' 58.055"), Estero de Palmar mouth (S 2° 1' 10.402 "-W 80° 44' 15.689") and the Palmar marine zone (S 1° 59' 23.955"-W 80° 45' 21.783") (Figure 1).

Water Collection

Seawater samples were collected at low tides during the rainy season. These samples were collected manually at the study sites at surface level (30 cm deep) in 1 liter capacity plastic containers. At each station, three replicates were taken, following the methodology established in the Standard Methods for the Examination of Water and Wastewater (APHA-AWWA-WEF, 2017). Afterwards, the samples were later kept in a cooler at 4°C until their delivery to a laboratory for analysis.

Microbiological analysis

One of the classical indicators used commonly in assessing the fecal contamination in waters in Ecuador is fecal coliforms according Ecuadorian environmental regulations (Acuerdo Ministerial 097-A). Fecal coliforms (FC) test were performed using the multiple-tube fermentation technique, and bacterial densities were estimated with the aid of most probable number (MPN) tables. The MPN value, based on probability formulas, is an estimate of the mean coliform density in the samples, following the protocols described in the Standard Methods (APHA-AWWA-WEF, 2017).

Statistical analysis

The Shapiro-Wilk statistical test was employed to test the normality of the laboratory data obtained (Zar, 1996). A non-parametric Kruskal-Wallis one-way analysis of variance was performed to evaluate the relationship between the concentrations of fecal coliforms and the stations surveyed, habitats (coded as estuaries: 1: beach-sandy shore; 2: Clif-Subtidal zone; 3: Estuary, the different reserve areas (north: 1; center: 2; south: 3) and level of pollution by fecal coliforms (1: Polluted water; 2: No polluted water; 3: Very polluted water). Cluster analysis were performed to visualize the similarity between the stations by the level of contamination and type of habitat. The data was transformed to square root and normalized prior to do the analysis using Primer V7.

Fecal coliforms concentrations were compared with their maximum permissible levels (LMP) values according to the Ecuadorian environmental regulation presented in the Unified Text of Secondary Legislation of the Ministry of the Environment by its acronym in Spanish (TULSMA) (Acuerdo Ministerial 097A) for water quality criteria intended for recreational purposes (primary contact), as well as microbiological criteria proposed by Palacios (2013), as shown in Table 1.

Table 1. *Evaluation criteria for microbiological quality (Adapted from Palacios, 2013).*

Fecal coliforms	Color scale	Criteria
MPN/100ml		
1 - 100		Non-polluted waters
100 - 200		Non-polluted waters with a tendency to exceed LMP
200		LMP, Water quality criteria (Ministerial Agreement 097-A)
200 - 1100		Polluted Waters
> 1100		Highly polluted waters

Fecal coliform concentrations in REMAPE fluctuated between 1.8 and 7000 MPN/100 ml, with an average of 1891 NMP/100 ml. The highest coliform concentrations were evidenced in the southern area of the reserve (Palmar zone), reaching values as high as 7000 MPN/100 ml at the mouth of the Estero de Palmar, while the lowest concentration was recorded at the Cumbre de Ayangué station with a value of 1.8 MPN/100 ml, as shown in table 2. Fecal coliforms were present at all sites, and of all the 15 samples analyzed, 93.3% exceeded the maximum permissible level established in the

TULSMA. It was revealed that only the Cumbres de Ayangue 2 site complied with the environmental standard for water quality intended for recreational purposes.

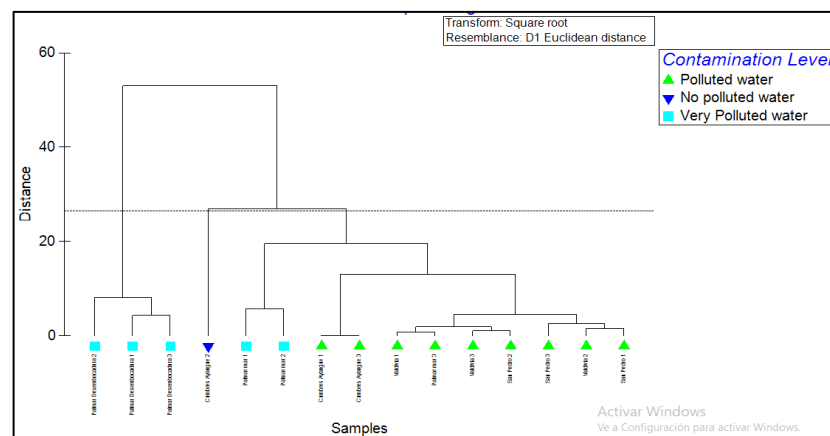
Table 2. *Fecal coliforms distribution arranged by habitats and stations analyzed in El Pelado Marine Reserve during February 2021.*

Station	Fecal Coliforms (NMP/100ml)	Marine Habitats	Location	Evaluation criteria
Valdivia 1	920	Estuary	North zone	Polluted water
Valdivia 2	700	Estuary	North zone	Polluted water
Valdivia 3	840	Estuary	North zone	Polluted water
San Pedro 1	630	Beach-Sandy shores	North zone	Polluted water
San Pedro 2	790	Beach-Sandy shores	North zone	Polluted water
San Pedro 3	540	Beach-Sandy shores	North zone	Polluted water
Cumbres Ayangue 1	210	Clif - Subtidal zone	Central zone	Polluted water
Cumbres Ayangue 2	1.8	Clif - Subtidal zone	Central zone	No polluted water
Cumbres Ayangue 3	210	Clif - Subtidal zone	Central zone	Polluted water
Palmar Desembocadura 1	7000	Estuary	South zone	Very Polluted water
Palmar Desembocadura 2	5400	Estuary	South zone	Very Polluted water
Palmar Desembocadura 3	6300	Estuary	South zone	Very Polluted water
Palmar mar 1	2200	Estuary	South zone	Very Polluted water
Palmar mar 2	1700	Estuary	South zone	Very Polluted water
Palmar mar 3	920	Estuary	South zone	Polluted water

In terms of habitats, the highest number of fecal coliforms was found in estuarine areas (700 - 7000 MPN/100 ml), followed by beaches (540 - 790 MPN/100 ml) and cliffs (1.8 - 210 MPN/100 ml), as shown in Table 2.

As revealed by the statistical analysis, fecal coliform data obtained in this study do not follow a normal distribution ($p < 0.05$) and marked differences in this parameter were found ($p < 0.05$) between sampling stations (p ; 0.0205), habitats (p ; 0.04) and REMAPE reserve areas (p ; 0.004). The cluster analysis showed that the stations were similar at the level of coliform concentrations by 50%. The most of the sampled sites (9 sites) presented waters contaminated by FC, mainly estuaries, beaches and subtidal zones, only strongly contaminated waters were recorded in the estuarine zone of Palmar (5 sites) and only one site (Cumbres de Ayangue 2) did not record a high level of contamination by FC (Table 2; Figure 3). Four clusters were observed, as noted in Figure 3.

Figure 3. Dendrogram showing the similarity between the sampled stations considering the contamination level by fecal coliforms (Polluted, no polluted and very polluted water) in the El Pelado Marine Reserve during February 2021.



From the information obtained in this study, there is evidence of substantial marine pollution by fecal coliforms at all 15 sampled points throughout the five stations of REMAPE. Furthermore, 14 of 15 water samples exceeded the permissible levels of fecal coliforms for primary contact established in the Ecuadorian environmental standard (TULSMA). Thus, these waters are unsuitable for recreational purposes since they pose a risk of disease transmission, leading to potential gastroenteric and respiratory health issues. Yet, highly polluted areas such as the Estero de Palmar are still used by residents as a leisure zone and for fish landing (Figure 4), aggravating the overall status of the reserve.

It can be inferred that point sources are present in REMAPE boundaries, especially in the estuarine areas of the Estero de Palmar and Valdivia. This could be associated with human settlements located on the margins of the estuaries, where inhabitants mostly have septic tanks, albeit troubled with hydraulic and maintenance issues, leading to overflow back into their houses (Figure 4). In some cases, residents do not have any treatment system and sewage is discharged through clandestine pipes directly into the estuary. Previous studies in a REMAPE estuary (Estero de Palmar) during 2013 showed fecal coliform values as high as 115 MPN/100 ml (Cárdenas-Calle et al., 2018). Nowadays, fecal coliform levels have seen a 60-fold increase in an eight-year period.

Figure 4. On the left, the external area of the Estero de Palmar. On the right, the overflow of sewage from a septic tank located in the vicinity of the estuary.



The higher levels of coliforms might also be explained due to the prevalence of the rainy weather during the sampling season. Spatiotemporal studies in watersheds and waterways have reported sensitive changes in fecal coliform numbers with stormwater overflows, and with rainfall and run-off amounts (Hill et al., 2006; Zhang et al., 2020).

Additionally, this study coincides with the carnival holidays, sharing the same conditions with the work presented by Palacios et al. (2013) in the Esmeraldas province, where significant bacterial pollution was reported at the mouth of the Esmeraldas River and in coastal areas close to the city of Esmeraldas' population, reaching fecal coliform values up to 4600 MPN/100 ml.

This specific study made it possible to determine the presence of fecal coliforms from domestic wastewater emissions that are discharged directly into marine and estuarine waters without any prior treatment, since 93.3% of the surface water samples analyzed recorded levels of fecal coliforms that exceeded the maximum permissible levels for primary contact established in the Ecuadorian environmental standard (TULSMA). The estuarine zones registered the highest contamination by coliforms, especially Palmar, followed by Valdivia, and their levels varied not only between sampling sites but also within them at the station level. This variation could derive not only from the presence of urban settlements, type of land use on the coastline, urban development, presence or absence of some type of wastewater treatment such as oxidation ponds, but also from the weather station, oceanographic characteristics and geomorphological of the study sites, direction of sea currents, sampling time, type of tide, time of tourist visit considerations that must be taken into account for future long-term studies. The uncontrolled urban growth, the lack of control of domestic wastewater emissions from populated centers, especially in Palmar, Ayangue, San Pedro and Valdivia, and their mismanagement should be a priority on the agenda of the municipal and environmental authorities of the Santa Elena Peninsula because the deterioration of the waters will affect the development of sun and beach tourism, recreational scuba diving activity, aquaculture and all it would affect the economy of the local inhabitants who subsist directly or indirectly from the tourist activities of this marine protected area that would be seriously affected in the short and medium term.

Sources of domestic wastewater must be determined and accounted for to mitigate environmental impacts in REMAPE. The municipal, environmental and tourism authorities must make the necessary efforts to create an economic fund for the

implementation of a contaminant monitoring and control program that at a minimum includes analysis of fecal coliform coliforms, *Escherichia coli*, enterococci, oils, fats, heavy metals and hydrocarbons in the estuarine zones, beaches and bays in this reserve to avoid the loss of goods and ecosystem services of this important marine protected area.

References

- Acuerdo Ministerial No. 097-A. Texto Unificado de Legislación Secundaria. Anexo 1 del Libro VI Del Texto Unificado de Legislación Secundaria del Ministerio del Ambiente (TULSMA), Norma de Calidad Ambiental y de descarga de efluentes al recurso agua.: Ministerio del Ambiente
- APHA-AWWA-WE (2017). Standard methods for the examination of water and wastewater, 23 ed., Washington DC, USA: American Public Health Association.
- Badilla-Aguilar, A., & Mora-Alvarado, D. A. (2019). Análisis de la calidad bacteriológica de dos playas tropicales: relación de indicadores de contaminación fecal entre el agua de mar y las arenas. *Revista Tecnología en Marcha*, 37.
- Báez, N., & Toscano, J. (2014). *Diseño de lagunas de oxidación para tratamiento de aguas residuales generadas en el campamento El Coca de la Empresa Triboilgas*. Quito: Universidad Central del Ecuador.
- Cárdenas, Maritza & Triviño, Miguel & Giovanni, Gianatta & Velásquez, Mauricio. (2018). Comunidades Bentónicas Presentes en Sitios de Buceo en la Reserva Marina El Pelado. *Investigatio*. 11. 67-88. 10.31095/investigatio.2018.11.6.

Pelado. Obtenido de
<http://repositorio.ucsg.edu.ec/handle/3317/12289>

- Hill, D. D., Owens, W. E., & Tchounwou, P. B. (2006). The impact of rainfall on fecal coliform bacteria in Bayou Dorcheat (North Louisiana). *International Journal of Environmental Research and Public Health*, 3(1), 114-117.
- Jofre-Meléndez, R., Cervantes-Pérez, J., & Barradas, V. L. (2015). Calidad del agua de la niebla captada artificialmente en la microcuenca del río Pixquiac, Veracruz, México: resultados preliminares. *TIP. Revista especializada en ciencias químico-biológicas*, 18(2), 122-130.
- Maldonado, J. (2019). *Diagnóstico de la situación turística de la reserva marina el pelado para el diseño de una estrategia de promoción turística*. Universidad de guayaquil, facultad de comunicación social.
- Mejía, E., & del Agua, C. (2008). Contaminación en playas causales y soluciones. Comisión Nacional del Agua. México DF, México.
- Merino, M. Á. O., Conforme, M. V. M., & Conforme, M. C. M. (2017). Incidencia de la pesca artesanal en la contaminación de la Playa del Cantón Puerto López, de la Provincia de Manabí-Ecuador. *Revista del Instituto de Investigación de la Facultad de Ingeniería Geológica, Minera, Metalúrgica y Geográfica*, 20(40), 18-27.
- Palacios, C. 2013. Distribución de coliformes fecales en el área marina de la costa ecuatoriana en las provincias de Esmeraldas y Manabí, 2008-2013. *Acta oceanográfica del pacífico* Vol. 18 No 1

Pietri,Ch; Stromboni,P. (1983).“Etude des variations des populations de coliphages et de bacteries fecales en eau de mer”; 12; [https://doi.org/10.1016/0045-6535\(83\)90102-9](https://doi.org/10.1016/0045-6535(83)90102-9).
<https://www.sciencedirect.com/science/article/pii/0045653583901029>

Sistema Nacional de áreas protegidas del Ecuador. (2015).
Obtenido de
<http://areasprotegidas.ambiente.gob.ec/es/areas-protegidas/reserva-marina-el-pelado>

Tomalá Delgado, M. (2014). *“Diseño de un centro de interpretación del patrimonio natural y cultural como base al desarrollo turístico de la comuna palmar, parroquia colonche, provincia de santa elena, año 2014”*. Obtenido de
<https://repositorio.upse.edu.ec/bitstream/46000/1712/1/TOMALA%20DELGADO%20MARIA%20VERONICA.pdf>

Vergaray, G., Méndez, C., Morante, H., Heredia, V., & Béjar, V. (2007). Enterococcus y Escherichia coli como indicadores de contaminación fecal en playas costeras de Lima. *Revista del Instituto de Investigación de la Facultad de Ingeniería Geológica, Minera, Metalúrgica y Geográfica*, 10(20), 82-86.

Zar, JH (1996) *Análisis bioestadístico*. 3ª edición, Prentice Hall, Inc., Upper Saddle River.

Zhang, X., Zhi, X., Chen, L., & Shen, Z. (2020). Spatiotemporal variability and key influencing factors of river fecal coliform within a typical complex watershed. *Water research*, 178, 115835.

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