

The Broken Glass of Education in Mexico from Neuroeducation and the Pymes

Los cristales rotos de la Educación en México desde la Neuroeducación y Las Pymes

JIMÉNEZ-GALÁN, Joel Luis†*, MONTALVO-VIVANCO, Miguel Ángel, GARZA-VAZQUEZ, Luis Humberto and SARIÑANA-ROACHO, Vianey

Universidad Autónoma de Tamaulipas, México

Universidad Autónoma de Aguascalientes, México

La Normal Rural La Aguilera, México

ID 1st Author: *Joel Luis, Jiménez-Galán* / ORC ID: 0000-0001-9490-0824, CVU CONACYT ID: 250010

ID 1st Co-author: *Miguel Ángel, Montalvo-Vivanco* / ORC ID: 0000-0002-2536-3882, CVU CONACYT ID: 571048

ID 2nd Co-author: *Luis Humberto, Garza-Vazquez* / ORC ID: 000-0002-1036-8920, CVU CONACYT ID: 616556

ID 3rd Co-author: *Vianey, Sariñana-Roacho* / ORC ID: 0000-0001-6724-4403, CVU CONACYT ID: 1048714

DOI: 10.35429/JET.2021.14.5.1.11

Received July 14, 2021; Accepted October 29, 2021

Abstract

As testimony, the situation that prevails in Mexico and the concept of the broken glass in education is seen with a sad argument where there are diverse and complicated broken pieces of educational reforms, for this reason neuroeducation was considered as a strategy to improve teachers and students. The objective was to identify the professionalization of teachers that allow raising the academic performance of students, which allows obtaining a recognition of PYMES based on education, The methodology, was considered to public universities and normal schools in Mexico. Methodology and a total of 3 instruments were applied in a sample of 150 students from a universe of 1500 students, through a multicenter observational design, where an evaluation instrument was a strategy. The study was carried out with a non-experimental quantitative approach of an instrumental type with the age and average. 100 teachers from educational institutions participated. The results of the exploratory factor analysis technique validated subscales related to strategies with a learning context, the contribution was among the main data, it was found that pedagogical skills, emotional affective and psychosocial aspects affect academic performance. It was detected that 10% of the students manifested emotional affective disorders.

Cognitive strategies, Pedagogical ability, Teacher professionalization

Resumen

Como testimonio, la situación que prevalece en México y el concepto del cristal roto en la educación se ve con triste argumento donde hay diversas y complicadas piezas rotas de las reformas educativas, por esta razón se consideró a la neuroeducación como estrategia para mejorar a docentes y alumnos. El objetivo fue identificar la profesionalización de los docentes que permitan elevar el rendimiento académico de estudiantes, lo cual permite obtener un reconocimiento de las pymes sustentado en educación, La metodología, se consideró a universidades públicas y escuelas normalistas en México. Metodología e aplicaron un total de 3 instrumentos en una muestra de 150 estudiantes de un universo de 1500 alumnos, mediante un diseño observacional multicéntrico, donde un instrumento de evaluación fue estrategia. El estudio se realizó con enfoque cuantitativo no experimental de tipo instrumental con la edad y promedio. Participaron 100 docentes de instituciones educativas. Los resultados de la técnica del análisis factorial exploratorio validaron subescalas relacionadas con las estrategias con contexto de aprendizaje, La contribución fue entre los principales datos, se encontró que las habilidades pedagógicas, afectivo emocional y aspectos psicosociales afectan al rendimiento académico. Se detectó que un 10% de los alumnos manifestaban trastornos del afectivo emocional.

Estrategias cognitivas, Habilidad pedagógica, Profesionalización docente

Citation: JIMÉNEZ-GALÁN, Joel Luis, MONTALVO-VIVANCO, Miguel Ángel, GARZA-VAZQUEZ, Luis Humberto and SARIÑANA-ROACHO, Vianey. The Broken Glass of Education in Mexico from Neuroeducation and the Pymes. Journal Educational Theory. 2021. 5-14: 1-11

† Researcher contributing as first author.

Introduction

A broken glass, we wonder what you can do with the pieces of glass? Well, something very useful, as in all things, that during life we are always accumulating broken glass recognized as experiences, likewise, for example, having studied for several stages of studies (kindergarten to postgraduate), where each level of growth that goes from early learning to adolescence and various educational reforms were experienced in Mexico, without knowing that all this formed pieces of a single crystal. Therefore we form a crystal according to the professional profile of the graduate and we go out to sell it, which is what it will reflect, our image of what we are really going to have to face before society.

Therefore, neuroeducation was used, which is a science that has biological intelligence to govern its actions, motivations, learning abilities and instincts about the environments that surround us and the natural phenomena that occur, such as empathic attitudes and behaviors with our crystal of life or what happens in these times of the COVID-19 epidemic with its variants as he said "Greek philosopher platter who was a physical formation; vulgar music and the vices of the body which can lead the soul to its slavery" , which is an integral process correlated in its various cycles, ranging from preschool to higher education.

They have little knowledge of the type of their glass and the professional profile of the careers and study programs in which they are enrolled. In addition, not having the entrance to the career that they really wanted, where this is considered as a factor that stimulates the abandonment or desertion of the university or technology, this being one of the main problems of academic performance. According to the main statutes responsible for educational policy in Mexico, I mention that some or most of them are related to the educational reforms that have happened, where, for example: Pdte. Venustiano Carranza. He said "that teaching is free" according to his crystal; but it will be secular that is given in the official educational establishments, also Pdte. Lazaro Cardenas. I mention that "education will be socialist. Plans and programs will correspond to the State.

Primary education will be compulsory and the State will teach it free of charge ", because it is reported that the economic factor is often not a determining factor for academic dropout and that students who drop out of preparation at the institution are not because of the university system but because of the type of formation according to your life crystal, such as Pdte. Avila Camacho. "He pronounced that love had as a priority the homeland, solidarity, democratic, national. All education provided by the State will be free "and other options to survive economically in the form of informing in most cases. Returning to the presidents and education in Mexico, Pdte.

Adolfo López Mateos. In his mind according to his crystal, "he put his eleven-year plan, promoted by Jaime Torres Bodet in 1959 secretary of the secretary of education" García Leos J. L. (2019) and Pdte. José López Portillo. He considered that "the Congress of the Union, would take education according to its rights, in order to unify and coordinate education throughout the Mexican Republic, it will issue the necessary laws, destined to distribute the educational social function." I know He intended to structure primary and secondary education by his vision according to his type of crystal, the Pdte. Salinas de Gortari.

He specified that "education must be based on scientific progress. All education that the State imparts will be free ", according to Article 3 of the aforementioned Mexican Constitution: Everyone has the right to receive education. The State —Federation, States, Mexico City and Municipalities—, will impart and guarantee initial, preschool, primary, secondary, upper secondary and higher education. They will be mandatory. "Reformed paragraph DOF 11-12-2002 and 02-09-2012. Without taking any reference from governors of the States of the Republic Chamber of Deputies (2020), nor any type of formation according to its crystal only that of the president. The Pdte. Vicente Fox Quezada. From his crystal of life he proposed "Preschool, primary and secondary school would be mandatory, alliance for the Quality of Education, opposition competitions", The Pdte. Felipe de Jesús Calderón Hinojosa.

He considered that according to his piece of glass, “education was based on respect for Human Rights. A new Curriculum 2011, Compulsory Higher Secondary Education”, El Pdte. Enrique Peña Nieto, argued that "education was of quality, based on constant improvement and maximum academic achievement of students, teacher professionalization, the professional teaching service is created", Pdte. Andres Manuel López Obrador. According to its crystal “education must be of excellence. The State will impart and guarantee initial, preschool, primary, secondary, upper secondary and higher education and teachers are fundamental agents of the educational process, they will have the right to access a comprehensive system of education, training and updating, fed back by evaluations that diagnose Education of excellence. (Table 1).

The National System of Educational Evaluation is created. National Institute for the Evaluation of Education
Considered by some as punitive, since the Complementary Law establishes the rules of permanence
2019 Lopez Obrador Education of excellence
The State will provide and guarantee initial, preschool, primary, secondary, upper secondary and higher education
Teachers are fundamental agents of the educational process. They will have the right to access a comprehensive system of education, training and updating, fed back by diagnostic evaluations.
The admission, promotion and recognition of the personnel that exercise the teaching, directive or supervisory function, will be carried out through selection processes to which the applicants attend under equal conditions and established in the law provided for in the previous paragraph.
Greater relevance to Civic and Ethical Training and nutritional education in children

The crystals of Sexennial Educational Reforms		
Year	President	Proposed reform
1917	Venustiano Carranza	Teaching is free; but it will be secular that occurs in official educational establishments
1934	Lázaro Cárdenas	Education will be socialist. Plans and Programs will correspond to the State. Primary education will be compulsory and the State will provide it free of charge
1946	Ávila Camacho	Love for the country, solidarity, democratic, national. All education provided by the State will be free
1959	Lopez Mateos	Eleven Year Plan, promoted by Jaime Torres Bodet in 1959
1980	Lopez Portillo	The Congress of the Union, in order to unify and coordinate education throughout the Republic, will issue the necessary laws, destined to distribute the educational social function. It was intended to structure primary education with secondary education
1993	Salinas de Gortari	Education based on scientific progress. All the education that the State imparts will be free. The Federal Executive will determine the study plans and programs of primary, secondary and normal education for the entire Republic. Compulsory primary and secondary
2008	Vicente Fox	Preschool, primary and secondary compulsory,. Alliance for the Quality of Education. Opposition contests
2012	Calderón Hinojosa	Education based on respect for Human Rights. New Study Plan 2011.. Compulsory Higher Secondary Education
2016	Peña Nieto	Education will be of quality, based on constant improvement and maximum academic achievement of students.
		Teaching professionalization, the Professional Teaching Service is created
		It focuses on addressing infrastructure deficiencies.
		Entry into the teaching service and promotion to positions with management or supervisory functions in basic and upper secondary education will be carried out through competitive examinations that guarantee the suitability of the corresponding knowledge and skills.

Table 1 Educational reforms and their main six-year objective

Source: Self Made

In this table the list of educational reforms in their most essential objectives according to the six-year period in Mexico is written According to the crystal there is a report published by the Organization for Economic Cooperation and Development (OECD2016), PISA 2015 exam. Obtaining as key results, among 15-year-old students, where there is a life satisfaction level of 8.3 on a scale of 0 to 10 (OECD average) In addition to this, following this same source, a level of motivation that is very low on the part of teachers towards performance higher than the OECD average: 83% of students declared that they want to be the best, whatever they do and that motivates them to start a company from their perspective of their crystal, but they need to join more pieces of other crystals, because without sufficient preparation and less without the knowledge of how to act in the face of problems such as It is the covid-19 pandemic, which forced the country's economic activity to be suspended for periods of time, on any type of educational modality of training or informing, the risk factors, without understanding how to maintain er a reflection on how the brain should be healthy and the functioning of its parts that intervene during learning, where it is very important to manage the appropriate decision-making on the economic-administrative characteristic that should be considered when forming a PYMES (small and medium-sized companies).

And that is why UNESCO advocates for the promotion of peace and for all children to have access to education, as well as to achieve inclusion, with the focus directed on adapting the public administration of poor countries and that they should be advised, with advanced educational systems, since the dynamics of globalization, such is the case of international provisions such as the 2030 agenda, whose objectives are sustainable development, that is why neuroeducation, (neuroscience and education) should be an important part that could help to increase up to a high 96% of academic performance in educational institutions, likewise for the type of teaching that teachers address, with 90% in their motivation and guarantee higher grades in all or nearly all subjects in an educational program.

The important part about the type of discussion on the interesting academic topics, the results that were obtained when identifying the problem of low academic performance was to feel how the different academic crystals look and about each of the aspects of academic performance, in each educational institution and how the participant contributes to positively highlight the improvement of academic achievement, especially when there is a negative status regarding six-year educational reforms, where there are certain indicators on the types of learning, multiple intelligences, retention memory and an increasingly low afferent uptake, for example in a study carried out by the BBC (British Broadcasting Corporation) mentions that the Latin American countries "with the worst academic performance".

This time it is a study by the Organization for the Economic Cooperation and Development (OECD), based on the data where the 64 countries participating in the Program for International Student Assessment (PISA), which indicate that the region is below the global standards of school performance, In fact, among the nations that appear in the report are: Peru, Colombia, Brazil and Argentina, which are among the ten most deficient, whose students have a lower level in areas such as mathematics, science and reading.

Latin American countries were well below the average established by the OECD. As well as the four South American countries - along with Indonesia, Qatar, Jordan, Tunisia, Albania and Kazakhstan, which are the ones with the highest number of 15-year-old students below the average performance in mathematics, reading and science. (PISA evaluation, 2015). Considering this research work represents some of the constitutional norms of any Latin American government, they helped to consider and identify the strategies used by each government administration of different periods, with the idea of establishing better future foundations for education and its citizens having access to their Results obtained, this study will serve according to the analysis and results obtained in the diagnoses made, where the inclusion of new academic lines and research models is proposed that includes neurotechnoeducation, neuroeducation, within the cognitive development for teachers and students of any school level and continue to carry out longitudinal studies of next generations and previous cohorts, both of the qualitative and quantitative model, or mixed, thus allowing the correlations between the dependent and independent variables that are really s to be analyzed. ignifying, with variables from cross-sectional studies in the short, medium term, based on their findings in education.

Academic performance has to establish criteria by linking psychic, somatic and physiological, cultural and scientific aspects in each institution, especially in those concepts of the use of the main parts of the brain and use of the technology involved in this research such as virtual reality . On the other hand, it is important to see what happens with PYMES and the academic level of the family, that is, the positive or negative influence on the monthly personal income, since a 10% increase in the academic level would cause an increase in personal income. 2.4% monthly in an SME. The foregoing agrees with the analysis carried out by Preoțiu, Volkova, Lampos, Bachrachy y Aletras (2015) due to correlations that show that a higher educational level indicates higher income. Picatoste, Pérez and Ruesga (2018), mention that the higher level of education in a country leads to a higher level of income per capita, because it translates into higher labor productivity.

Therefore, it is considered, as with the educational level, the monthly personal income can be seen as a fundamental piece. Various authors mention that by investing in human capital (education and learning skills). Income can be improved and is considered one of the most effective ways to reduce income inequality in the long term (Jaumotte, Lally Papageorgiou, 2008; Abdullah, Doucouliagos Manning, 2011; Gruber, Kosack, 2013; and Shahabadi et al. ., 2016). This research makes it possible to clarify that family support, the school environment, psychic anxiety and somatic anxiety in higher-level and normal institutions of the state such as: Autonomous University of Tamaulipas, Autonomous University of Aguascalientes, La Normal J. Guadalupe la Aguilera in Canatlán Durango. When supported by neuroeducation they can increase their rates of memorization ability, learning processing, and better mental logic. However, in the sample it is contemplated that university and normal students also suffer the type of somatic anxiety that increases and that sometimes manifests itself with attacks of psychic anxiety, considering that there is little income and family economic support.

The main strength of this research is that it is possible to establish a well-founded basis starting from a biofeedback, to be able to carry out an analysis on the training and electroencephalic signals of the brain with the intention of monitoring the alpha and beta signals of the brain and analyzing different learning processes. Finally, this work can be a reference base for a more detailed analysis due to the characteristics that could be obtained on how the educational reforms in the government of Mexico, academic performance and anxiety (analyzed in detail) helped or not on the growth of the academic performance.

There is the possibility of implementing new types of more rigorous analysis at specific intervals on the school averages such as: results of the evaluations in the subjects taken, the teaching of new subjects for newly hired teachers according to the current reform 2021, for which a multivariate analysis (ANOVA and multi ANOVA), which will serve as the next phase of the next research project on biological neurotechnology with the use of virtual reality and educational models, dedicated to the interpretation of the instructions that are handled on the PISA exams and observe attitudes and skills.

This study allows us to extract a database, to have good information on the research work, which was proposed under the follow-up of a doctoral thesis with the title on psychosocial factors in academic performance of the Autonomous University of Tamaulipas and that allowed contrast its variables with local scenarios, to the national management, thus allowing to visualize with greater representativeness the management of instruments and information focused on academic performance. Regarding the objective where it was possible to find and identify that academic performance is a function of the psychosocial factors and abilities of the teachers, where there are negative differences and important positive aspects, which must be taken into account in the students of the Public universities such as the Autonomous University of Tamaulipas, the Autonomous University of Aguascalientes, Normal schools, in Durango and the country's PYMES. Considering that this work is a reference, which agrees with authors that the indicative aspects are very important in some Universities such as the Autonomous University of Hidalgo, Mexico.

Because it was identified that academic performance is a huge problem, which must be attacked with innovative strategies and methodological models of the fourth generation, on teaching and learning, where the hiring of teachers until their entry and the graduation profile of the student, wherever is the congruent definition of the professional profile of a graduate, in any academic program. Considering the improvement of this research, it was possible to identify the use of new variables to improve future research such as: the school profile, tutorials, counseling, the semester average, student nutrition, etc. With the idea of improving and identifying solutions for the new generations based on better values and indicators in the public universities of the participants.

The education policy is in accordance with the regulations as long as its concepts are revised, such as that of Mexico, which says, "It will be of quality, based on constant improvement and maximum achievement." As well as being able to determine the frequencies, correlations, regressions, standard deviations, coefficients, Bootstrap specifications and descriptive statistical data to identify the following points:

Regarding the variables and their indicators in the means were: the human profile, academic responsibility, psychic anxiety and somatic anxiety, they considered the improvements, they were positive correlations, with an effectiveness greater than 99%. This agrees with what has been previously stated by other authors due to the fact that there is indeed a lack of family support, the school environment with violence, attacks of psychic anxiety and somatic anxiety is used as a means to indicate low or high academic performance; on the other hand, a higher academic level should generally translate into greater motivation and emotion on the part of the student and therefore obtain a higher level of knowledge. Mainly in those related to teamwork, because, to obtain the economic and social benefits of the adoption of these tools, appropriate educational programs must be designed, implemented and evaluated that allow individuals to develop better educational skills by creating new SMEs according to andrology and pedagogy. Performing an exhaustive analysis of the cross-correlation matrices that provide useful information on the performance of academic performance. The observations that were made were for different time lags in the Spearman coefficient of variation correlation matrix due to the interdependence between the variables. Regarding ρ . A punctual correlation cannot be made with its respective counterpart, because it does not have useful information that can be used to describe its respective behavior and order.

Neuroeducation

In the regulations of the last educational reform 2019 it is mentioned that education in Mexico, there have been several models applied for the learning of Mexican citizens. With the start of the 2018-2019 school year, the new way of associating the reorganization of the system in three axes was also launched, first; human beings develop their full potential in school, where it will allow them to make decisions in a comprehensive manner, such as academic training, which consists of subjects of national observance; second, Personal and Social development, which include socio-emotional skills; third;

Curricular autonomy, which gives school communities the opportunity to define a part of the curriculum, according to their interests and needs, "the Ministry of Public Education reported in a statement. But this requires going beyond the cognitive and addressing the social, emotional and physical needs of all children and adolescents. This new look is provided by neuroeducation with an integrative and transdisciplinary approach whose objective is to improve the teaching and learning processes based on scientific knowledge around the functioning of the brain. Jesús C. Guillén (2017)

Here neuroeducation has the socio-emotional skills, they have as a substantial part from the own experience with the students. One of the main concerns that has been had is the meaning and importance of each of the emotions that I still remember today, both positive and negative in different instances of the school learning process itself. Regarding the face-to-face modality "The presence of the teacher who fully inhabits his class is immediately perceptible. The students feel it from the first minute of the year, we have all experienced it: the teacher who has just entered is absolutely there, can be seen by his way of looking, greeting his students, sitting down, taking possession of his table and he has not dispersed for fear of their reactions, he has not shrunk in on himself, he goes about his business, right off the bat, he is present, he distinguishes each face, where for him, the class exists immediately "(Pennac, 2008), because of what the brain does. "In our emotional repertoire, each emotion plays a unique role, as revealed by its characteristic biological attunements.

PYMES literature review

When we refer to students and not precisely in relation to the educational reforms they interpret, but rather to the opportunity to create new PYMES, it is a question of the crystal that they manifest as being an entrepreneur, for example, small and medium-sized enterprises (pymes) As a very important sector both in Mexico and in the world, for example in Latin America, it reaches an average of 99.25% of the total business units, generating 35.5% of employment, thus fulfilling an important role in leveling inequality economic, which characterizes this region (Saavedra and Hernández, 2008).

For example, in Europe 99% of companies are pymes (CE, 2006), in the United States they are 99.7% of all companies (Leebaert, 2006).

There are numerous studies about the influence of public policies on the development of SMEs (Bibu, Stefea & Sala, 2009, Carree, Van, Thurik, & Wennekers, 2002, Carroll, Holtz-Eakin, Rider, & Rosen, 2000, Choi and Phan, 2006, Cohen and Baralla, 2012, Di Tomaso and Dubbini, 2000, Dussel, 2004, Ramírez, 2007, Rivera, 2002, Roper, 2005, Smallbone and Welter, 2001, Zevallos, 2006), all agree on the importance of the government's role in promoting the development of these companies. On the other hand, policies that aim to reduce poverty through the creation of new jobs pay special attention to PYMES.

Improving their access to finance, and the business environment, as well as general market conditions, these can have a positive effect on the number of jobs created by PYMES, especially in the long term (De Kok, Deijl & Veldhuis- Van, 2013).

For their part, Haltiwanger, Jarmin and Miranda (2012) also found that the growth rate of job creation is higher in small companies than in large ones, however, they found that young companies have high generation capacity as well as job destruction. Affecting job satisfaction Likewise, Neumark, Wall & Zhang (2008) found that the negative relationship between the size of the establishment and job creation is much less clear for the manufacturing sector, that is, they did not find a higher employment growth rate. in small companies in the manufacturing sector compared to large companies. The economic crisis generated by the coronavirus disease (COVID-19) has a significant impact on the countries of Latin America and the Caribbean and hits a productive and business structure with weaknesses that have originated over decades. On the other hand, activities intensive in Knowledge, when it exists, are enclaves that are not very articulated with the rest of the economy in which the possibilities of modernization and improvement for the mipymes (micro, small and medium-sized companies) that operate in them are scarce (Dini and Stumpo, 2019).

Finally, the high informality prevailing in many labor markets (which reaches 54% of total employment, according to the International Labor Organization (ILO)) makes the development of micro and small enterprises especially difficult. three stages, linked to the stages that will be experienced in relation to the epidemic in each country.

- The first is related to the emergency and the measures to be taken in a very short time.
- The second will occur when, once the outbreaks of this epidemic have been controlled, it is necessary to "live" with a virus that, without health and social controls, can spread again. Some (many) of the restrictions on economic and social activities will be maintained and the economy will operate "in mid-gear", with differences between sectors. This stage is what is usually called reactivation. • The third will take place when there is no danger of contagion (once the vaccine exists) and will involve a new economic and social reality. This reality will be different in each country according to the duration and intensity of the first two stages, the economic and social measures that have been taken and the institutional, productive and technological capacities accumulated. In addition, there will be changes in the international economic and political scenario since countries will enter the second and third stages at different times and under different conditions.

In Mexico, on the other hand, the activity of the manufacturing industry fell by 10.9% in the first four months of the year and the sectors most affected have been leather and footwear (-29.5%) and transport equipment (-26.9%), while the food industry registered an increase of 2.5% (INEGI, 2020). Therefore, the role of education in terms of these labor economic data is questioned, when we know that noneducational reform has contemplated this important concept of talking about education before companies, nor the role played by universities that create professional or graduate profiles.

Methodology

The methodological framework was observed by the different institutions participating in the research, it was exploratory to be able to know the impact of academic performance in the different public universities of Mexico or normal school in Durango, it was a cross-sectional study carried out at the Autonomous University of Tamaulipas, including variables independent: examination dates, semester average, age, family support, school environment, psychic anxiety and somatic anxiety, among others, as well as the correlation which is the overall academic performance of the group, the age according to the semester that they attend, (Table 2). A random sample was carried out through which a sample of 150 students who study the upper degree level was obtained in the year 2020.

The applicable formula for the finite sample was Where: N = Total population; $Z\alpha$ = 1.96 squared (if the reliability is 95%); p = expected proportion (in this case 5% = 0.05); q = $1 - p$ (in this case $1 - 0.05 = 0.95$), and d = precision. According to the sample obtained, a sample size equivalent to 150 questionnaires was obtained. The Likert scale was used for the instruments as a measurement tool that, unlike dichotomous questions with a yes or no answer, allows measuring attitudes and knowing the degree of conformity of the respondent, by establishing a certain scale as the benchmark in the instruments for each of the items considered, according to the independent and dependent variables used. coverage "at the level", that is, part of the students who access an educational service of the expected level given their age, which is usually known as the net enrollment rate; and coverage "in grade" or "timely", fraction of the PYMES population served at the expected level and grade according to the age of working in a PYMES. In no case are the «gross enrollment ratios» used, since in these the numerator is not a subset of the denominator, so it does not measure a proportion and coverage is a proportion, but rather the volume in relative terms. (Guadalupe 2002 and 2015). Keep in mind that coverage is computed using (in the numerator) enrollment information and (in the denominator) estimates from the interviewees.

Thus, for example, if the indicators of a population are overestimated, this could lead to an underestimation of coverage. Similarly, the discrepancy between the sources can generate estimation errors that are evident, but are not limited to when the rates exceed 100%.

Various criticisms were presented, described as: a) what is the filling of the questionnaires, b) the number of participating students per questionnaire, c) how the formats are presented, d) the material for filling in (pencil, # 2). This is when the analytical approach proposed by (Lucas, 2001) arises, which mentions "who analyzes the effects of social origin, both in the probabilities of transition at different levels". As in the location of people by their academic performance, age, date of the test and the average of the student and the curricular choices that they have adopted, it is necessary to establish if the anxiety manifests itself according to the day they take the test and the years completed (Table 3), where it refers to the student's age and date of the test, in order to determine if the day, month and year of the test affects their semester average (Table 4), likewise it can be seen if the age is to do with the semester average, the mean and the standard deviation (Table 5), which indicates that a certain educational level is not universal, the most socioeconomically favored use its advantages and resources to ensure access to that level (quantitative advantage) ; when access to the level becomes almost universal, inequity of origin will not disappear. In other words, the most economically favored people will seek to occupy better positions within a stratified educational system.

		Date	Age
Academic performance	Pearson Correlation	1	-.001
	Sig. (2-tailed)		.991
	N	150	150
Age	Pearson Correlation	-.001	1
	Sig. (2-tailed)	.991	
	N	150	150

Table 2 Correlation between academic performance and the age of the students

Source: Own Elaboration

This table is where your variable, description and type of relationship are described as; dependent variable academic performance and independent variable age.

	N	Minimum	Maximum	Mean
Age	150	16	23	18.89
Test of date	150	05-May-2019	09-Jun-2019	07-May-2019
Valid N (listwise)	150			

Table 3 Statistics of age and date of application of the Test

Source: Own Elaboration

This table describes the test date variable and the minimum or maximum age of the students

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Age * Semester average	150	75.8%	150	24.2%	150	100.0%

This table describes the percentage of the relationship between the age of the young people and the group semester average.

Semester Average	Mean	N	Std. Deviation
6.0 - 6.5	19.00	10	.
6.6 - 7.0	19.09	21	2.166
7.1 - 7.5	18.67	16	1.751
7.6 - 8.0	19.22	19	2.108
8.1 - 8.5	18.80	15	.837
8.6 - 9.0	19.45	20	.759
9.1 - 9.5	19.05	20	1.099
9.6 - 10	18.75	12	.866
X - 5.9	17.88	17	1.500
Total	18.89	150	1.428

Table 5 Relationship of averages by school semester, the mean and standard deviation

Source: Self Made

This table describes the rating relationship indicator with the mean and its standard deviation.

Results

The results of the analysis of the points on the risk factors to identify professionalization in teachers and job satisfaction from the pymes perspective, is achieved through direct participation with students who are in the last semester of their professional career, who are involved in this research with decisive and direct action on teachers at the Autonomous University of Tamaulipas (Victoria Faculty of Commerce and Administration), the Autonomous University of Aguascalientes and the Aguilera Rural Normal School in Canatlán, Durango, which are educational institutions interested in knowing what indicators are three that are affecting or benefiting their graduates.

First in the face of the natural factor of the covid-19 pandemic, second in those who abandon academic programs, due to anxiety or somatic issues at the time of presenting final exams of their semester, third the economic situations that prevent continuing with your studies, thus aggravating problems for both education and pymes that require trained professionals, as well as identifying which are the independent variables that support the dependent variable of academic performance that intervenes in business competitiveness and its factors external.

The multivariate analysis is defined by Hair et al., (1999) whose purpose is to measure and explain and predict the degree of relationship of the theoretical values, they are linear combinations of composite variables from the empirical weights applied in this work, towards the pymes, relating risk factors and job satisfaction. The correlation matrices show how the dependent and independent variables are related, highlighting that there may be a low or high significant correlation with variables such as: exam dates, which in many cases is not contemplated if there is availability by the student or is finds in difficult situations, semester averages that are mostly low grades due to lack of financial resources, the age of the student that has a lot to do with the lack of maturity and reasoning, since they are under 25 years old, serious anxiety, somatic problems, etc. Considering the Pearson correlation (r) is greater than 0, therefore it will correspond to a positive correlation with direct sense and if its closeness to 0 is positive but low.

Discussion and Conclusions

In Latin American countries, such as Mexico, they were well below the average established by the OECD. That the highest number of 15-year-old students have below the average academic performance in administrative mathematics, reading and economic science. (PISA Evaluation, 2015) Considering in this work it shows how COVID-19 affects constitutional norms, which surely helped to consider and identify the strategies used by each government for the foundations of virtual education and that they dedicate to their peoples, so that in this study it serves according to the analysis and results obtained.

Where new lines of research in neuroscience are proposed, neurotechnology education within cognitive development under neuro-leadership in PYMES and to continue carrying out a longitudinal study of previous generations and cohorts, both of the qualitative and quantitative model, thus allowing its shape variables to be really significant, with short cross-sectional studies, medium and long term, starting from their dependent and independent positions, according to the findings in competitiveness and external factors that are developing.

References

- Abarca, A. and Sánchez, M. A. (2005). Student desertion in higher education: The case of the University of Costa Rica. *Research news in education* 5, pp. 1-21
- Abdullah, A., Doucouliagos, H. & Manning, E. (2011). *Education and Income Inequality: A Meta-Regression Analysis*. (Unpublished manuscript). Deakin University. Retrieved
- Bibu, N., Stefea, P. & Sala, D. (2009). External and internal environment influences on SME competitiveness from the western area of Romania. *Scientific Review Paper*, 6 (2) 41-52
- Chamber of Deputies (2020) Legal evolution of article 3 of the Constitution in relation to free higher education. Retrieved from: <http://www.diputados.gob.mx/bibliot/publica/inveyana/polint/cua2/evolucion.htm>
- Carree, M., Van, Ac., Thurik, R. & Wennekers, S. (2002). Economic Development and Business Ownership: An Analysis Using Data of 23 OECD Countries in the Period 1976-1996. *Small Business Economics*. 19: 271-290.
- (EC) n° 561/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, of March 15, 2006, regarding the harmonization of certain provisions on social matters in the road transport sector and amending the Regulations (EEC) No. 3821/85 and (EC) No. 2135/98 of the Council and Council Regulation (EEC) No. 3820/85 is repealed
- Carroll, R., Holtz-Eakin, D., Rider, M., & Rosen, H. (2000). Personal income taxes and the growth of small firm. National Bureau of Economic Research. Working paper 7980
- Cohen, M. and Baralla, G. (2012). The situation of SMEs in Latin America. Argentina: Ireal PYME.org
- Choi, Y. & Phan, P. (2006). Influences of Economic and Technology Policy on the Dynamics of New Firm Formation. *Small Business Economics*. 26: 493-503
- De Kok, J., Deijl, C. & Veldhuis-Van, C. (2013). Is Small Still Beautiful? Germany: International Labor Organization and Deutsche Gesellschaft für Zusammenarbeit (GIZ) GmbH.
- De Lucas (2001a): On the conditions of inclusive citizenship (the immigration contract test) », *Hermes*, 1/2001.
- Dini M. & Stumpo G. (2019) MSMEs in Latin America: a fragile performance and new challenges for development policies. *Synthesis Case studies in Latin America September 2019* Publisher: CEPAL - SIGLOVEINTIUNO EDITORES ISBN: 968-23-2545-5
- Di Tomaso, M. R. and Dubbini, S. (2000). Towards a theory of the small firms: theoretical aspects and some policy implications. Chile: ECLAC.
- Dussel, E. (2004). Small and Medium Enterprises in Mexico: Conditions, Relevance in the Economy, and Policy Challenges. *Economy UNAM*, 2, 64-84.
- Hair, J. F. et al. (1999): *Multivariate Analysis*. Madrid, Prentice Hall.
- Haltiwanger, J., Jarmin, R. & Miranda, J. (2011). *Who Creates*
- Jobs? Small vs. Large vs. Young. National Bureau of Economic Research, Working Paper 16300
- INEGI (National Institute of Statistics and Geography) (2020), "Indicators of the manufacturing sector figures during April 2020 (seasonally adjusted figures)", Press Release, N° 274/20, June 18 [online] https://www.inegi.org.mx/contenidos/saladeprensa/bol-etines/2020/emim/emim2020_06.pdf

García Leos J. L. (2019) Overview of reforms in basic education. From the Eleven Year Plan to the New Mexican School (1970-2019) <http://ensech.edu.mx/pdf/maestria/libro4/TP04-1-01-Garcia.pdf>

Gruber, L. & Kosack, S. (2013). The tertiary tilt: education and inequality in the developing world. *World Development*, 54, 253-272.

Guadalupe, Cesar; Juana Huilcamisa; Liliana Miranda; María Luisa Quintana; Jose Rodriguez; Nestor Santillán; Juan Pablo Silva and Gloria Zambrano (2002) Peruvian education (at the beginning of the new century. Lima: Mecep-Ministry of Education. Consultation date: 3/15/2014. <<Http://umc.minedu.gob.pe/?p=381>>. Guadalupe, César (2015) «How Feasible is it to Develop a Culturally-sensitive Large-scale Standardized Assessment of Literacy Skills?» In: Hamilton, M.; B. Maddox and C. Addey (eds. *Literacy as Numbers: Researching the Politics and Practices of International Literacy Assessment Regimes*, Cambridge: Cambridge University Press, pp. 111-128.

Guillen. J. (2017) Neuroeducation in the classroom: From theory to practice, CreateSpace Independent Publishing Platform, 290 pages, Spain.

Jaumotte, F., Lall, S. & Papageorgiou, C. (July 2008). Rising Income Inequality: Technology, or Trade and Financial Globalization? International Monetary Fund. Retrieved from <https://www.imf.org/external/pubs/ft/wp/2008/wp08185.pdf>.

Leebaert, D. (2006). How Small Businesses Contribute to U.S. Economic Expansion. *eJournal USA*, 11 (1) 3-6.

Neumark, D., Wall, B. & Zhang, J. (2008). Do small businesses create more jobs? National Bureau of Economic Research, Working Paper 13818.

OECD (2016). PISA, 2015: Assessment Framework Key competencies in reading, mathematics and science. OECD. Retrieved from http://www.oecd.org/document/44/0,3746,en_2649_35845621_44455276_1_1_1_1,00.html. [Date of consultation: 23 / January / 2015].

Pennac, D. (2008) *Bad school*. Barcelona: Editorial Mondadori.

Picatoste, L Pérez-Ortiz, SM Ruesga-Benito (2018) *Telematics and Informatics* 35 (4), 1031-1038 *Income through Language, Behavior and Affect in Social Media*. PLOS ONE

Preoțiuc-Pietro, S. Volkova, V. Lampos, Y. Bachrach, N. Aletras (2015). Studying User A new educational pattern in response to new technologies and sustainable development. *Enlightening ICT skills for youth employability in the European Union*

Shahabadi, A., Nemati, M. & Hosseinidoust, S. (2016). The Effect of Education on Income Inequality in Selected Islamic. *Journal of Asia-Pacific Studies* 14 (2), pp. 61-78

Ramírez, E. (2007). Criticism of the current tax structure in Mexico. *Accounting and Administration*, 223, 113-134.

Rivera, G. (Coord.) (2002). *Micro, small and medium-sized companies in Mexico. Evolution, operation and problems*. Mexico: Institute of Legislative Investigations of the Senate of the Republic.

Roper, S. & Hart, M. (2005). *Small Firm Growth and Public Policy in the UK: what exactly are the connections?* Aston Business School Research Papers. RP 0504.

Saavedra G., María L and Hernández C., Yolanda. (2008) *Characterization and importance of MSMEs in Latin America*. *FACES Accounting Update Year 11 No. 17*, July-December. Merida Venezuela. (122-134)

Smallbone, D. and Welter, F. (2001). The role of government in SME development in the transition economies of central and Eastern and the newly independent states. Conference proceedings the fourth International Conference on Enterprise in Transition. University of Split, Split-Hvar, May 24-26, Croatia.

Acknowledgment

To God the Father for his infinite mercy to carry out this work with so much effort in times of COVID-19