

Psycho-academic impact of COVID 19 among UPGM students during virtual classes

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Abstract

The results of a psycho-academic survey applied to the students of the careers offered by the Polytechnic University of the Gulf of Mexico (UPGM), located in the municipality of Paraíso in the State of Tabasco, México, are presented. The objective of this work is to know the opinion of the students about the teaching-learning process during the period (September - December), in which the classes were developed virtually due to the COVID - 19 pandemic. A questionnaire was elaborated, strata were formed and the formula for a finite population was used to determine the size of the sample and thus know the size of the population to be surveyed with 95% confidence and an error of 0.5. With the data obtained, a descriptive statistical analysis was performed. The results show the factors that affect the academic performance of the students, as well as some proposals to strengthen their study habits.

Keywords: virtual class, face-to-face class, ICTs, connectivity, teaching-learning, COVID– 19

Introduction

From January 2007 to March 20, 2020 the classes have been face-to-face at the UPGM, however on March 23, 2020 the face-to-face classes were suddenly changed to the virtual modality. This was because the General Health Council decreed a declaration of sanitary emergency, which was based on the suspension of all non-essential activities in the public, social and private sectors; For this reason, the Secretary of Public Education (SEP) announced the suspension of face-to-face classes at the national level to prevent the spread of infections by COVID-19, a disease that emerged at the end of 2019 in Wuhan, Hubei province in China and was declared a global pandemic on March 11, 2020. ^[1]

The change to virtual classrooms has caused uncertainty among UPGM students, who were used to a learning model led by a teacher, whose function was: to explain, clarify, communicate ideas and experiences; to guide them towards knowledge. On the other hand, the virtual environment requires from students a constant and even intensive use of ICT; besides being self-taught.

The study of the difficulties that students have experienced during the COVID 19 pandemic will be useful for university authorities to be prepared for similar situations that may arise in the future. For this reason, it was decided to do an analysis on the perception and emotions of the students when experiencing a drastic change from face-to-face classes to classes in virtual mode.

Background

The face-to-face model has been the most used since the beginning of the existence of university institutions. In traditional spaces, the student knows what time he will enter

the classroom, what he will do once inside, the dynamics is controlled by the teacher, who indicates what to do and how to do it ^[2]. The new information and communication technologies (ICT) represent, in addition to an information and communication instrument, a new social space and therefore a new educational space known as Virtual Education ^[3].

Virtual Education has characteristics that greatly differentiate it from the On-site Modality. First, there is greater autonomy and independence that students enjoy for the development of their learning process, the student being the one who sets their work pace. The second characteristic is that a percentage of the students grant a more practical nature to their learning objectives, because this type of student develops a work activity linked to their formal studies, which greatly favors their intrinsic motivation ^[4].

The change from face-to-face to virtual requires the institution, the student and the teacher: analyze, plan and determine, in a more careful way, each of the activities that they will develop within the teaching-learning process ^[5]. The reasons to take classes from face-to-face to virtual are different, seen from the point of view of institutions and teachers. ^[6]

Regarding emotions in educational processes during the 20th century, there is little attention ^[7]; with the exception of two notable contributions: the study of anxiety related to evaluation and performance (exams, tests, etc.) and the study of the relationship between emotion and motivation linked to academic success and failure (guilt, pride, etc.). Pekrun's analysis ^[7]; recognizes the limited knowledge available about the occurrence, frequency and phenomenology of emotions in different learning environments, and especially in online learning. The

scientific study of emotions from an educational perspective is wrong when treating emotions as an object of study [8]. According to Rebollo [9], the emotional relationship of students in virtual learning environments is especially interesting due to the implications for self-regulated and autonomous learning. Emotions seem to be closely interrelated with essential components of student self-regulated learning, such as: interest, motivation, learning strategies, and internal regulatory control. Since the creation of the Polytechnic University of the Gulf of Mexico (UPGM) in 2007, degrees have been offered with a duration of three and a half years, under the regime one hundred percent face-to-face classes, however, due to the pandemic situation generated by COVID-19 that was experienced in 2020 and that is currently being experienced in 2021, the SEP (Ministry of Public Education) decided to

make changes in the academic activities of all educational levels. Particularly in the UPGM, the face-to-face classes were transferred to the virtual environment. This work is important because it will allow a descriptive analysis of the students' opinions about: learning, academic performance and emotions; that they experienced during the period 2020 -03.

Materials and methods

A multiple-choice psycho-academic questionnaire made up of twenty questions was prepared using the Google Forms tool, which is a simple platform for students to enter and answer without any problem. Then, the data of the enrollment and list of email addresses of the students enrolled in the period 2020 -03 were requested from each career director of the University.

Table 1: UPGM student population, 2020-3 period

Career	Number of students
International trade and Customs	252
Physical therapy	152
Agrotechnology Engineering	44
Financial engineering	140
Petroleum engineering	111
Automation and Industrial Control Engineering	147
Engineering in Safety and Industria Automation	49
Total	895

To choose the sample size, the formula of a finite population without replacement of units and with a confidence level of 95% was used. Due to the characteristics of the population, a stratified sampling was required, with each career

represented in a stratum. Subsequently, the number of students per career was determined, and a random selection was made through simple random sampling. The calculated size of the student population to survey was 269.

Table 2: Stratified sampling and sample size

Career	Number of students (population)	Percentage of population	Proportional allocation
International trade and Customs	252	28.16	76
Physical therapy	152	16.98	46
Agrotechnology Engineering	44	4.92	13
Financial engineering	140	15.64	42
Petroleum engineering	111	12.40	33
Automation and Industrial Control Engineering	147	16.42	44
Engineering in Safety and Industrial Automation	49	5.47	15
Total	895	100	269

The random sample of surveyed students from each career was obtained using a table of random numbers generated in Excel. The lists of students by career were ordered from the lowest grade to the highest grade, according to the letter of the group; that is: A, B or C. In this way, 7 databases were formed, from which the selection was made without replacement of the students, using the table of random numbers and according to the sample size requested in each stratum. In the selection process, numbers were considered in descending order by columns of the table of random numbers generated in Excel. The list of students to be surveyed was generated and the survey link was mailed to each participant. The results obtained were grouped in a single database, to carry out the descriptive statistical analysis. Finally, the most relevant responses were identified regarding the opinion and satisfaction of UPGM students regarding the virtual education that caused the COVID-19

pandemic.

Results & Discussion

In the 2020-3 period of the UPGM there were 895 students enrolled, of which 269 of them were surveyed, representing 30% of the total population. Most UPGM students live with their parents, this corresponds to 85% of the surveyed population, 7% lives with a partner, 3% lives alone and 5% lives with a brother or other family member or person with someone relationship.

Graph 1 shows the most predominant emotions in the population of UPGM students, in the isolation period from face-to-face academic activities. It is clearly observed that there are three most prevalent emotions in the surveyed population. In the first place, boredom is found with 44.98% of the population, in second place stress 43.87%, and in third place anxiety with 42.75%.

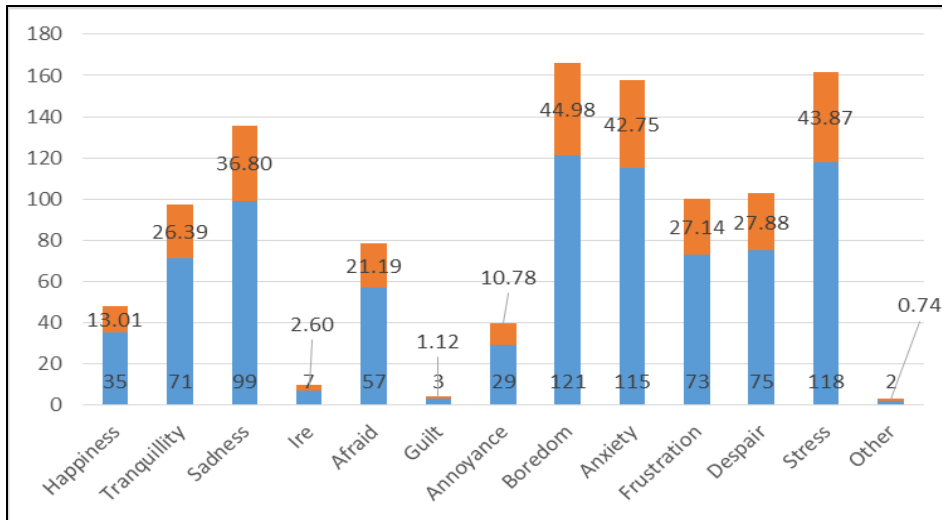


Fig 1: With which emotion do you most identify your state of mind in this period of isolation due to the COVID- 19 pandemic?

Taking virtual classes generates different types of feelings for each student, from feeling highly motivated and preferring to be at home with family members, to not adapting to taking classes in this way because they consider

that the same level of academic achievement is not acquired. Graph 2 shows the feelings of the students when taking virtual classes.

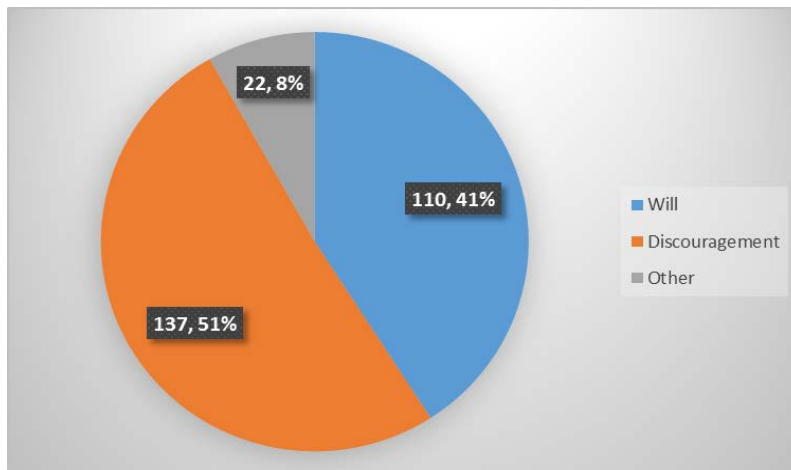


Fig 2: How do you feel about taking online classes?

The UPGM has a system of face-to-face classes, some of its students had the habit of attending the computer center, library and laboratories to carry out some practices, research activities, as well as homework; after concluding a day of classes. However, the results obtained in the survey indicate

that not all students have the necessary resources to take classes from home and to be able to comply with the academic activities requested by their teachers. Graph 3 shows the percentages of the conditions under which students carry out their academic activities.

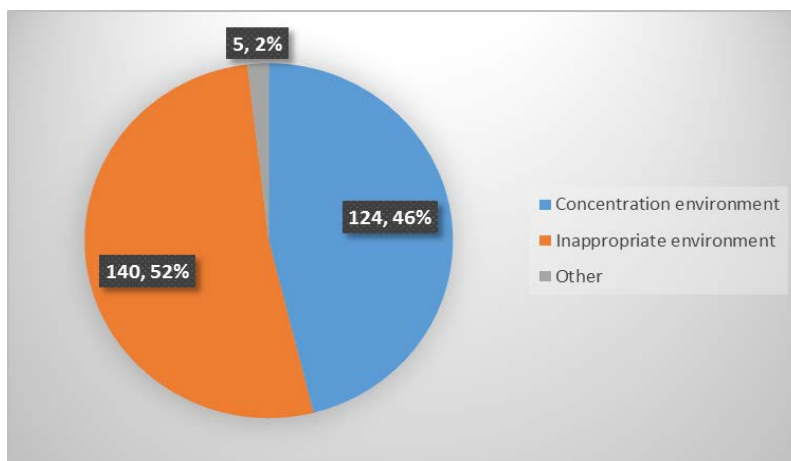


Fig 3: What are the conditions that you have in your home to carry out your academic activities during this period of isolation?

Part of the problem of the deficiencies that the students mentioned in the survey, in order to achieve a good academic performance in virtual classes is that 61% of the students do not have internet at home, for which it carries out its activities using data or recharges. Only 39% of the

surveyed students have internet service. Graph 4 shows that only 38% have a computer and more than half of the students, 56%, use a smart mobile device. This situation makes it difficult to comply with their academic activities. See graph 5.

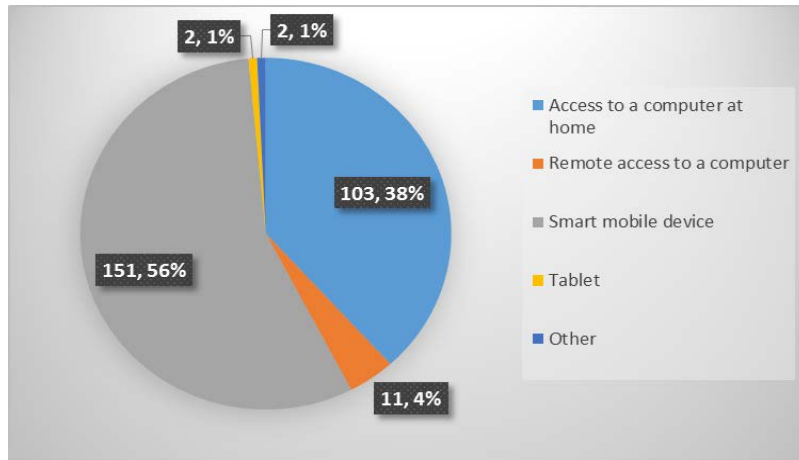


Fig 4: What are the connectivity conditions that you have to carry out your academic activities during this period of isolation?

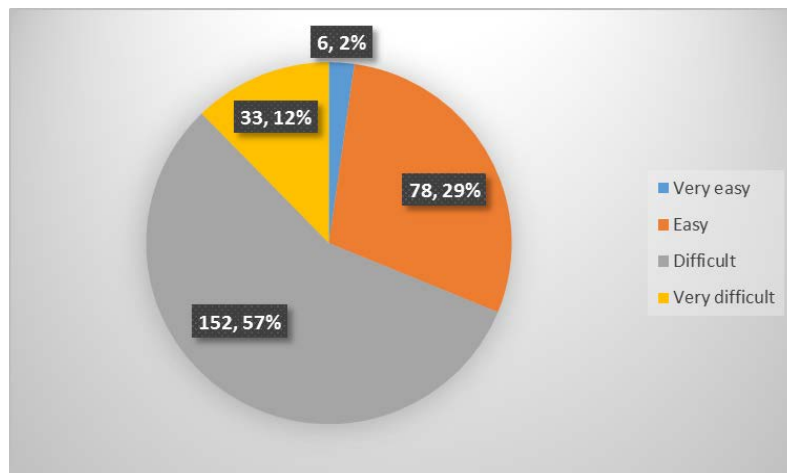


Fig 5: How do you consider distance work has been in your role as a student?

Derived from the previous questions, in terms of connectivity and technological resources available to students, 51% consider that they are taking advantage of the teachers' teachings during their virtual classes in this

contingency and 49% agree that they are not of any benefit. Graph 6 illustrates the opinion of UPGM students about taking classes virtually.

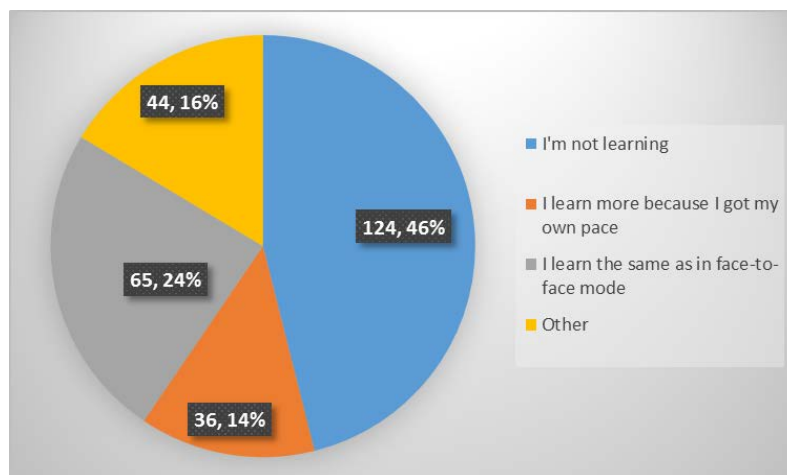


Fig 6: How do you consider your academic experience working online during the contingency?

In this research, 269 UPGM students were surveyed, corresponding to 30% of the population. The sampling method used was probabilistic, with a confidence level of 95% and a margin of error of 5%. Sampling by strata was applied, within which a simple random sampling was carried out, through which a representative sample of the population was obtained, to know the emotional impact produced on students by the actions of distance education by the UPGM, due to the pandemic generated by COVID-19.

Among the questions that were made to the students, the majority affirmed that it is difficult for them to learn this way since they are not used to this type of education and because they do not have the necessary connectivity. The results reflect that the factors that affect academic performance are: the lack of internet at home, lack of technological equipment, lack of distraction-free spaces, Lack of study habits, Fatigue due to long hours in front of the PC or technological equipment. In addition to the above the economic situation that the student lives, since some have had to face apart from their academic responsibilities, economic responsibilities to support the family which has been affected by the unemployment of economic activities. Also the fact of being positive or losing family members to COVID-19 makes the situation more complicated, for which they tend to be emotionally affected by stress, sadness or fear.

Most UPGM students use a smart mobile device in order to carry out their academic activities. However, some teachers ask them to be connected and interact through the device; as well as complying with a class schedule equal to that of the face-to-face mode. In order in this way to comply with the thematic contents, and cover the hours allocated to the subject during the week; generating fatigue and annoyance in the student.

Although the pandemic situation has made virtual education a useful resource to continue the teaching-learning process, factors such as connectivity and the teaching strategies used by each teacher, can affect students who are already used to face-to-face education or do not have technological devices for their academic activities. Only 39% of UPGM students have internet service, while 56% use a smart mobile device to carry out their activities. Thinking about a virtual education model is complicated but not impossible; however, first the gap that exists in connectivity issues between students and teachers must be reduced.

Conclusions

Due to the health emergency that is experienced, changes in education have had to be established, which have impacted both students and teachers, since despite being in a technological era, they were not fully prepared for a change from face-to-face to virtual. Because not all teachers were trained in technological knowledge or had taught classes online or virtual. On the other hand, although the current student is a native of technology, the change has been complicated since they were used to having a study space, a schedule and a guide teacher with whom to interact in person.

According to the results obtained, the students have been greatly affected emotionally and academically by the transition from face-to-face classes to virtual classes, mainly because virtual classes require the student to be the one who distributes the way of studying, to learn by himself, at his own pace and mainly because it is an education that

operates through the use of technology, where the teacher only acts as a facilitator of learning environments.

Given that the change of modality in education was very rapid, there are still students who do not adapt to this system and who do not have the technological resources or the adequate space for concentration to carry out their activities. For this reason, it is urgent that measures be taken that allow students to improve their academic performance and, above all, do not drop out of their studies. To solve this difficulty, study habits should be strengthened in students and the teaching and evaluation processes made more flexible; according to the needs during the period of the health contingency. It is also necessary to implement tutorial actions that allow to strengthen study habits. It is necessary that the Psycho-pedagogical Attention Center (CAP) has more intervention providing support to avoid the lack of motivation on the part of the students, according to the results, 45% (bored) and 44% (stressed).

The results show that UPGM students accustomed to face-to-face education experience a variety of both positive and negative emotions in the virtual environment, the most experienced positive emotions are: tranquility and joy, while the most experienced negative emotions are: stress, boredom and anxiety.

References

1. Castro LR. Coronavirus, una historia en desarrollo. *Revista Médica de Chile*,2020;148(2):143-144.
2. Bartolomé A. ¿Universidad presencial o virtual?. *Universidades en la red*,2002;52(896):34-48.
3. Echeverría-Samanes, B. Gestión de la competencia de acción profesional. *Revista de Investigación Educativa*,2002;20(1):7-43.
4. Andalucía Jd. Guía sobre buenas prácticas docentes para el desarrollo en el aula de las competencias básicas del alumnado. Junta Andalucía Consejería de Educación,2012.
5. Aguilar MA, Del Valle ME. De lo presencial a lo virtual: Caso Universidad Metropolitana Opción. *Redalyc.org*,2016,32(9):17-31.
6. Scagnoli NI. De lo presencial al virtual. *Revista Cultural de la Universidad Autónoma de Aguascalientes* 2004, 53-57.
7. Pekrun, R. Progress and open problems in educational emotion research. *Learning and Instruction*, 2005;15(5):497-506.
8. Rebollo-Catalán MÁ, García-Pérez R, Barragán-Sánchez R, Buzón-García O, Vega-Caro L. Las emociones en el aprendizaje online. *RELIEVE: Revista Electrónica de Investigación y Evaluación Educativa*. 2008;14(1):1-23.
9. Rebollo-Catalán MÁ, García-Pérez R, Buzón-García O, Vega-Caro L. Las emociones en el aprendizaje universitario apoyado en entornos virtuales: diferencias según actividad de aprendizaje y motivación del alumnado. *Revista Complutense de Educación*. 2014;25(1):69-93.