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PLANNING AND BEGINNING A UNIVERSITY COURSE IN A GLOBAL PANDEMIC: THE CASE OF AGRICULTURAL ENGINEERING AT THE UNIVERSITY OF LA LAGUNA (CANARY ISLANDS, SPAIN)

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Educators have been forced to change their teaching methodologies very suddenly. In Spain, from March 15, 2020, the daily routines of the country's inhabitants have changed due to COVID-19. The nation's students and professors had to adapt to new technologies quickly, in order to avoid their education being paralyzed during the lockdown which, in the case of Spain, lasted 99 days. We have studied the effect of this period of forced online teaching/learning at the University of La Laguna (ULL), Agricultural Engineering degree, through a survey sent to students.

For this purpose, a survey was created and sent online to students of the Agricultural Engineering degree of the ULL, which solicited the students' opinions regarding the following:

- 1) the availability of hardware and software in the students' homes, to be able to follow the classes normally, as well as if they have a separate room where it is possible for them to study;
- 2) to what degree they have been able to follow the classes online, if this has been sufficient, and if they have been up to the face classes, if they have been able to manage the virtual classes, and if they have sufficiently learned the content in this way;
- 3) if students feel their generation will suffer a comparative disadvantage with those students who have been able to complete a traditional in-class university education, and if they are afraid for their future employability due to the impacts of COVID-19; 4) how many students intended to go on an exchange to another European country and how many have managed this. The data provided through the survey reflects that students believe they will have difficulties in finding a job due to the way they have received part of their university education, although most of the respondents are satisfied with the training received during the online period.

keywords: online higher education; canary islands; covid-19; survey.

PLANNING AND BEGINNING A UNIVERSITY COURSE IN A GLOBAL PANDEMIC: THE CASE OF AGRICULTURAL ENGINEERING AT THE UNIVERSITY OF LA LAGUNA (CANARY ISLANDS, SPAIN)

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Abstract

Educators have been forced to change their teaching methodologies very suddenly. In Spain, from March 15, 2020, the daily routines of the country's inhabitants have changed due to COVID-19. The nation's students and professors had to adapt to new technologies quickly, in order to avoid their education being paralyzed during the lockdown which, in the case of Spain, lasted 99 days. We have studied the effect of this period of forced online teaching/learning at the University of La Laguna (ULL), Agricultural Engineering degree, through a survey sent to students. For this purpose, a survey was created and sent online to students of the Agricultural Engineering degree of the ULL, which solicited the students' opinions regarding the following: 1) the availability of hardware and software in the students' homes, to be able to follow the classes normally, as well as if they have a separate room where it is possible for them to study; 2) to what degree they have been able to follow the classes online, if this has been sufficient, and if they have been up to the face classes, if they have been able to manage the virtual classes, and if they have sufficiently learned the content in this way; 3) if students feel their generation will suffer a comparative disadvantage with those students who have been able to complete a traditional in-class university education, and if they are afraid for their future employability due to the impacts of COVID-19; 4) how many students intended to go on an exchange to another European country and how many have managed this. The data provided through the survey reflects that students believe they will have difficulties in finding a job due to the way they have received part of their university education, although most of the respondents are satisfied with the training received during the online period.

Keywords: online higher education; Canary Islands; Covid-19; survey.

1 INTRODUCTION

The public health situation due to coronavirus disease (Covid-19) forced Spain to decree a home lockdown of its citizens, which lasted from mid-March to the end of June 2020. All socio-economic aspects of the country were paralyzed overnight, including education at all levels. In order to continue with the education of Spanish students and avoid the 2019/2020 academic year being lost completely, the school moved, from one day to the next, to an online modality in all Spanish education (university and non-university) (The Lancet, 2020).

The Canary Islands are an archipelago formed by eight islands, where there are only two universities. We refer to one of these in this document, the University of La Laguna in Tenerife. The other university is the University of Las Palmas de Gran Canaria, on the island of Gran Canaria. The universities are located on the capital islands, which means that students from the other islands must typically travel to Tenerife or Gran Canaria in order to complete their university studies.

The case study in this document is the School of Agricultural Engineering of the University of La Laguna, on the island of Tenerife, in the Canary Islands. The Canary Islands are an outermost European region belonging to Spain, and the University of La Laguna is the oldest centre of higher education in the Canary Islands, with more than two hundred years of history. Its portfolio of degrees includes 45 Degrees, 30 Official Masters and 52 Doctorate programs.



Figure 1. Facilities of the University of La Laguna School of Agricultural Engineering

The School of Agricultural Engineering (Figure 1), where the Degree in Agricultural and Rural Engineering is taught, has seen an annual increase in the number of students enrolled during the nine years of this degree's trajectory within the University of La Laguna. This degree has always been taught in person because it is a career with a strong practical aspect, where students must engage in many hours of study throughout their training. This is carried out in the following facilities:

- Classrooms and Laboratories distributed in the four floors of the building: Laboratories of Phytotechnology, Chemistry, Biology, Physics, etc.
- Various mechanical garages to house the machines studied in the subjects of Agricultural Mechanization
- Farms
- 1 Cheese factory
- Cultivation lands for vegetables, fruit trees, etc.
- 6 Greenhouses

Agricultural Engineering is a career with a high practical content. This is why we wanted to discover how the switch to 100% online teaching during the second semester of the 2019/2020 academic year has affected the students in this degree program.

The main characteristic of university education, as opposed to primary and/or secondary education, is that those involved in it are of legal age. Therefore, a greater autonomy and adaptability to the new circumstances can be assumed, which implies the personal responsibility to follow their classes virtually (Burki, 2020). In the following sections we will know if this is the case.

2 METHODOLOGY

Questions were asked through a massive survey, in order to learn the opinions of students of the School of Agricultural Engineering at the University of La Laguna, after the forced online teaching period due to the confinement of Spain from March to June, 2020. The general intention of the survey questions is described below:

- To learn in which academic year the students are, in order to establish if they are at the beginning, middle or end of their university period.
- To determine the availability of their own electronic devices for the correct monitoring of classes and participation in exams, as well as sufficient connectivity to internet networks. In addition, in

the case of not having personal electronic devices (computer, tablet, etc.), if the university provided the necessary hardware to these students.

- We also asked about the characteristics of the room reserved for study within their home, that is, if there was a room available only for study, if the materials and space had to be shared with other relatives, etc.
- Once the students' means and availability of services were known, they were asked about what positive experiences they had obtained from online learning, if they believed they had gained skills by having to develop greater independence in their learning, if they had been able to overcome difficulties in order to continue with the academic year until the end, etc.
- Other questions we asked were those related to the predisposition of the student to register in the 2020/2021 academic year, due to the uncertainty of perhaps having to face renewed online learning.
- Finally, questions were asked that aimed to ascertain the students' perception of their professional future and the difference in the training received, compared to colleagues from other generations who have been able to receive their training completely in person.

In the following section, the results obtained from the described survey are analyzed.

3 RESULTS

Overall, 80 students from the four courses that make up this university degree responded to the survey. Of these 80 students, we have the following representation: 21 students in first grade; 15 students in second grade; 26 students in third grade; and 18 students in fourth grade. It was decided to generally combine the answers, but some questions were separated by course, since we observed that the students' concerns vary according to the point they are at in their academic journey.

The following is an analysis of the survey responses:

- 1 The vast majority of students surveyed have their own computer or tablet and, for those students who do not (very few cases), the university provided the necessary hardware to monitor the classes.
- 2 98% of those surveyed have Wi-Fi in their home, as well as the appropriate software. Regarding cameras, 90% of students surveyed have a camera in their electronic device, while 10% do not (this could have caused difficulties in determining the identity of a person in the final tests of the subjects).
- 3 The three most outstanding advantages for students, in terms of online teaching, have been the following: "It's more convenient, saves me time and money on travel"; "It motivates me more, more fun, more creative, it breaks the routine" and "It reduces my ecological footprint."
- 4 The third- and fourth-year students responded more positively, with higher scores, that they had been able to overcome their difficulties in learning online, while the first- and second-year students scored lower. It can be concluded that the older students have developed greater autonomy and have been able to adapt to the online period with more success than students who are in the earlier courses of the degree.
- 5 40% of the students surveyed expressed that they had hesitated to register for the period 2020/2021. Among their greatest concerns were: "The degree of difficulty in learning is very high"; "Covid-19 has generated deficits in learning that hinder my progress" and "The material provided during Covid-19 was inadequate and/or insufficient".
- 6 30% of the students who responded were from outside the island of Tenerife. In the case of these students, some have seen advantages such as: "Not spending money on travel and accommodation in order to study" and "Being able to stay in (their) family homes". These are the only students who answered 'Yes' to the question, "Have you found it difficult to organize your return to the 2020/2021 school year". This is logical, as they must organize travel between islands, find accommodation for during the course, etc.
- 7 11 of the respondents answered 'Yes' regarding their intention to participate in an exchange program during the school year 2020/2021; only one of them has decided to continue with this.

- 8 86% of those surveyed say they are worried about their future employability due to impacts of COVID-19 and believe the quality of their training has worsened compared to those who were able to complete their studies in a 100% in-person method.

Despite presenting disparate responses and, in some sections, having been critical of the situation and the adaptability of the university to these new circumstances, most students feel acceptably satisfied with the learning received during the pandemic (Figure 2).

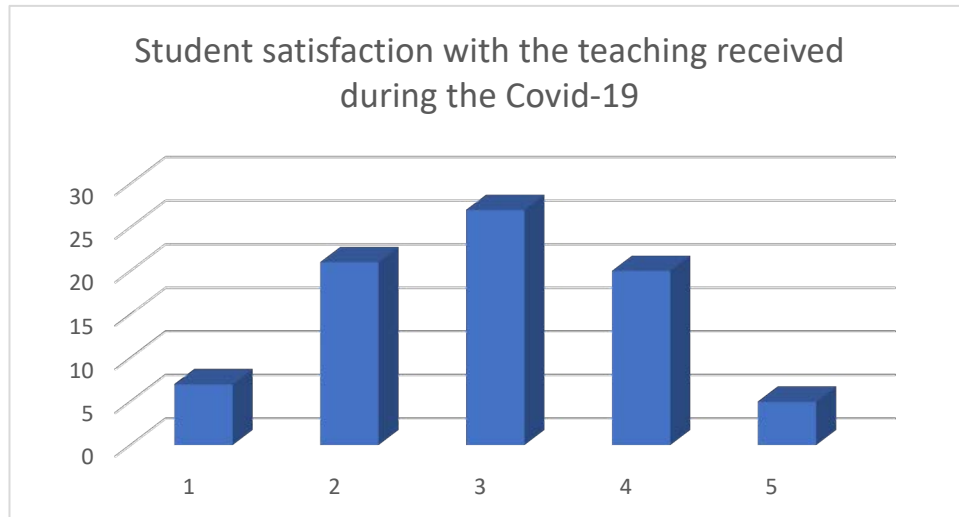


Figure 2. Student level of satisfaction with the teaching received during the pandemic, being 1 Nothing and 5 Very high

4 CONCLUSIONS

The 2019/2020 academic year posed great challenges at all levels of education, specifically in those studies that were primarily in person. However, the rapid response of Spanish public education meant that, despite the circumstances, the course was not lost, and students received the training set out in the curriculum. Since we find ourselves in a scenario of constant uncertainty that continues even today, students have had doubts about continuing with their studies during the 2020/2021 school year. However, specifically at the School of Agricultural Engineering of the University of La Laguna, we have managed to increase the number of students enrolled this year.

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