Handbook T-I

Tutoring, a form of virtual accompaniment

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ECORFAN Tutoring, a form of virtual accompaniment

Volume I

The Handbook will offer volumes of selected contributions from researchers who contribute to the scientific dissemination activity of the Universidad Autónoma del Carmen in their areas of research in Social Sciences. In addition to having a total evaluation, in the hands of the directors of the Universidad Autónoma Carmen, the quality and timeliness of its chapters, each individual contribution was refereed to international standards (RESEARCH GATE, MENDELEY, GOOGLE SCHOLAR and REDIB), the Handbook thus proposes to the academic community, recent reports on new developments in the most interesting and promising areas of research in the Social Sciences.

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Preface

Mexico, like the rest of the world, was seriously shaken by the Covid-19 pandemic, however, before this horrible episode, it was necessary to adapt and update our teaching-learning system, in order to be in line with the evolution of time and the new challenges we faced in education, which is why we saw the need to incorporate technological advances that would expand the coverage of education to strengthen the teaching process and student support. There was also the need to create the virtual tutor, whose main objective is to break down barriers and limitations related to physical space and time to establish effective communication. The virtual tutor is in charge of the pedagogical accompaniment of participating teachers during a distance or blended learning course online education tutors must orient their abilities, values, strategies and attitudes in order to generate an effective communication, a more fluent exchange of information and above all a pedagogical immersion that allows to evaluate and examine the stages of the teaching-learning process. Nowadays, the teaching-learning processes have been resized, since both teachers and students have to act in new scenarios typical of the times in which we live, and thus we find new educational modalities based on information technologies. The authors of this work, interested in measuring the effectiveness of the implementation of long distance tutoring, have conducted research on the subject, which gives rise to this book that is addressed to students, parents and all actors involved in education in Mexico, which always benefits our students, because we know the importance of this in the current century, facing every day, new challenges.

TEJERO-BOLÓN, Francisco Javier

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Chapter 1 Tutoring, essential accompaniment in the university school environment

Capítulo 1 Tutoría, acompañamiento esencial en el ámbito escolar universitario

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Abstract

University insertion is a unique experience that provides opportunities for growth and academic and cultural strengthening; therefore, the tutor presence and tutorial actions are essential in the accompaniment during higher education to finish satisfactorily. This study is of a qualitative and quantitative nature with a focused character that expects to describe the usefulness of tutoring before, during and after virtual accompaniment, as well as tutoring advantages and disadvantages with different tutors. The composition of the information presented is from the tutelage Hernandez Ruiz (student) of the Tourism Administration bachelor 2019 generation at the Universidad Autonoma del Carmen. According to the presented results, the tutor figure is prevailing for an adequate and successful school trajectory, for which it is required to continue with the pertinent actions developed by the tutor 4 (current) and other pertinent strategies to successfully complete the education program.

Higher education, School trajectory, Technology, Pandemic

Resumen

La inserción universitaria es una vivencia única que brinda oportunidades de crecimiento y fortalecimiento académico y cultural, por ello, la presencia de un tutor y las acciones tutoriales son esenciales en el acompañamiento durante el nivel superior para terminar de forma satisfactoria. Este estudio es cualitativo y cuantitativo con carácter focalizado que busca describir la utilidad de la tutoría antes, durante y después del acompañamiento virtual, así como ventajas y desventajas de la tutoría con diferentes tutores. La conformación de información presentada es de la tutorada Hernández Ruiz (estudiante) de la Licenciatura en Administración Turística, generación 2019 de la Universidad Autónoma del Carmen (UNACAR). De acuerdo con los resultados que se presentan, la figura del tutor es relevante para una trayectoria escolar adecuada y exitosa, por lo que se requiere continuar con las acciones pertinentes desarrolladas por el tutor 4 (vigente) y demás estrategias adecuadas para culminar con éxito el programa educativo.

Educación superior, Trayectoria escolar, Tecnologías, Pandemia

Introduction

Tutoring has long been understood as the hours that the tutor dedicates to the tutored person to resolve doubts about school trajectory and academic performance.

The need to continue implementing these tutorial hours is due to the advantages and disadvantages that can be obtained, as well as the motivational support of the tutoring by dedicating time to their accompaniment. For this purpose, group tutorials are put into practice where the largest possible number of students are gathered to obtain greater participation, as well as individual tutorials, in which the students maintain a more personal, assertive and punctual communication, in a virtual, on-site, or hybrid manner.

The largest proportion of school dropouts of students occurs precisely during the first year of university education (Ezcurra, 2007).

For Rodriguez, the origin of university tutoring is to be found in the very conception of the university, and he distinguishes three major university models. The first model he calls academic (linked to the German tradition and with presence in the context of continental Europe) where the functions of the university are centered on the academic development of students. In this model, tutorial activities are focused on assisting in the mastery of knowledge without going beyond the school environment (Rodriguez, 2004).

Method

A focused qualitative and quantitative method was used.

Qualitative. Identifies the advantages and disadvantages of group and individual tutoring in virtual and on-site modality. The information presented details the point of view and academic performance of the student Hernández Ruiz of the educational program Bachelor's Degree in Tourism Administration of the Universidad Autónoma del Carmen (UNACAR), generation August 2019, currently in her seventh semester.

Quantitative. Data from the Kardex and AFI`S consulted in the student portal of the university's official website, information used in graphs to show the result of the tutorial accompaniment, as well as the academic performance and the integral development of the tutored person.

Focused. It consists of directing the interest towards ideas and arguments to obtain results.

Theoretical framework

The development of a tutorial action requires a good knowledge of the students: their previous ideas, what they can learn, the levels of motivation, habits, attitudes, values towards study. It requires as a condition the development of a process of empathy with the other, since it is simultaneously a bridge and a channel of transmission of suggestions, concerns and proposals that are collected in the working relationships with other members (teachers, professors, preceptors, management team) (Martínez, 1997). There are numerous definitions of tutorial action. The diversity of definitions is marked by the concept of education and guidance that each author supports. We define tutoring as an action of formative intervention aimed at monitoring students and which is considered as an additional teaching activity. The typology of the intervention and the conditions of its application determine the tutorial model to be applied (Lázaro, 2003).

The uniqueness of guidance and tutoring projects is expressed in the school environment itself, based on the characteristics of the teaching teams, the conditions of institutional organization and pedagogical projects. These dimensions will define a range and diversity of proposals and work actions. For these reasons, the management of these actions requires a triple level of reflection (Rué, 1994) on the part of teachers, directors, supervisors and/or specialists of technical teams in school/psychopedagogical support.

Alvarado Nando (2010) considers that the epistemological framework of tutorial action can be found at the intersection of cognitive sciences and the complexity paradigm. Other authors (Barberà, 2006; Sánchez Vélez, 2012; Vargas Solís and Monroy Farías, 2012; Lara García et al., 2013) state that tutoring is implicit in the discourse of the so-called "sociocultural" paradigm (Hernández Rojas, 1998; 2006; 2008).

Current analyses of vocational guidance present us with a multidisciplinary perspective (with contributions from psychology, sociology and pedagogy), whereby its function in the school is oriented to the promotion of students' learning centered on the progressive knowledge of themselves, ordering their needs and interests, recognizing the influence of others, knowledge and trials on different social and work roles. From this perspective, vocational guidance appears closely related to occupational guidance. While vocational guidance is developed from the discovery and reflective analysis of one's own history and life experience, occupational guidance results from working with relevant information regarding roles, objects, tools, techniques and strategies to make vocationally effective (Gelvan de Veinstein, 1994).

Some studies that empirically analyzed the new tutoring system observed certain processes of conservation and innovation with respect to tutoring actions that had been carried out prior to the reform. Conservation appears in the performance of the role of tutors in dealing with problems of indiscipline and/or group conflicts. The innovations that would propel this new tutorial action would be observed in a greater recognition of the tutor's role by teachers and parents to improve school performance levels, professional choice and articulation with teaching (Ortega, 1996).

The tutoring function is based on the importance of knowing each school group if we wish to have an education more adapted to the needs and difficulties of the students. In addition, the improvement of learning conditions is proposed, which implies guiding students regarding study problems or personal or relational behaviors (Del Regno, 1997).

According to the characteristics of the projects, different institutional actors may participate in the coordination on a rotating basis (professors, teachers, older students, preceptors, management staff), depending on each institution, pedagogical situation and subject matter to be addressed with the students. Secondly, the specific coordination of these projects is characterized by its mediating character between the different institutional actors, their demands, specific needs and the curricular management that is promoted in the classroom and in the school. In these mediation processes, conceptual and attitudinal changes are promoted with the management of conflict between different actors. As opposed to the competitive style of traditional negotiation processes and its derivation in winners or losers, mediation favors a cooperative work style (Frigerio, Poggi et al., 1992).

According to the institutional management style and "expressive coherence" (Schvarstein, 1998), school mediation experiences constitute, in some cases, isolated activities or, on the contrary, they are an innovative device to initiate transformation processes in the cooperative work styles assumed by the school and its actors for the resolution of conflicts and the development of shared educational projects. Comprehensive tutoring model addresses the academic, professional and personal dimensions of the student in a global way. It is possibly the most complete model since it promotes the integral development of the student, in his or her intellectual, emotional and professional facets (Rodríguez Espinar, 2001).

Tutors are often selected for their experience in a particular community. They possess tacit knowledge accumulated through years of practice. Compared to the tutored person, they have greater insight and skills in a specific practice (Conley, 2001).

Tutors are guides who achieve academic excellence, clarify goals and study planning. They teach and refine the knowledge of their area of expertise, as well as the processes or standards of professional conduct. These standards include attitudes, professional values, ethics and academic excellence (Peyton, 2001). On the part of schools, attention to children and young people has been focused almost exclusively on their role as students, denying or ignoring all their other dimensions and all their other realities as persons. Even in university education, the consideration and treatment of students as young people, young people who are in a school situation, is also very recent (Weiss, 2012). Tutorials before, during and after the virtual accompaniment.

The present study identifies the advantages and disadvantages of the virtual tutoring that was developed during the pandemic period, with the purpose of comparing the virtual modality with the on-site one and the benefits or consequences that arose during the period.

Tutorials before the virtual accompaniment

The on-site tutorials of the Institutional Tutoring Schedule (HIT) are held every Friday from 11:00 a.m. to 1:00 p.m. The tutors of the Bachelor's Degree in Tourism Administration educational program meet with the students of different generations, as they are group tutorials, discussing related topics of interest, as described below:

Explanation of the conformation of the curriculum map, to know how each semester is structured and to know the electives that are included in the educational program.

Problems that may have arisen with respect to the subjects that are more difficult to take and in which a tutor may have problems, either personally with the teacher who taught the subject or in academic relation to what should be learned in the subject.

Integral Formation Activities (AFI'S), which must be accredited, make up a total of 128 hours, equivalent to 8 credits. The optional insurance, important and beneficial, favors the care, health and welfare of the students, as well as because it is very necessary in the career as a requirement for trips that are required by the subjects of the tourism branch.

Also, organization of academic events of the LAT educational program, such as: "La noche mexicana", kermés "fiestas patrias", "Concurso de altares" for the Day of the Dead, such as recreating an altar related to ancient cultures (Mayan culture).

Tutorials during the virtual accompaniment

Due to the health contingency derived from the COVID-19 pandemic, virtual classes and tutorials were used for safety and foreseen by the federal authorities. The Microsoft Teams technology platform was used in all academic activities.

The career manager created the general channel called "Tutorías- Licenciatura en Administración Turística" (Tutoring – Bachelor's Degree In Tourist Administration) in which various topics began to be discussed, such as the following:

Scholarships, lectures by teachers about what caused the pandemic lockdown, such as "Prevention and Depression".

"Preventive health measures" (hand washing, sneeze etiquette, use of antibacterial gel, use of mouth covers, healthy distance, etc.).

Counseling on re-enrollment, readjustment, intersemester, among other important topics that benefit the students of the educational program.

Tutorials after the virtual accompaniment

Currently, tutorials are taught in a hybrid way, taking into account the importance of the return to classes and the need for students to express themselves while they are part of the on-site and virtual meetings where new relevant topics are named for the student, as well as recreational activities that promote motivation and development, also taking into account the active participation of the tutors during the new stage and college career On-site vs. virtual tutoring.

On-site vs. virtual tutoring has several advantages and disadvantages in each modality. Table 1 shows both modalities, on-site and virtual, from the perspective of the tutor Hernández Ruiz.

Table 1. Advantages of on-site and virtual tutoring

Tutoring	On-site	Virtual
Advantages	– Participation focuses on interpersonal relationships and active participation.	– Personalized attention with tutors. – Increased attendance by tutored person. – Tutoring is handled in a group setting in the assigned classroom. – Support for school processes such as enrollment, re-enrollment, readjustment, among others, is easier using technological devices.
Disadvantages	– Tutors do not have full availability for the various students who require assistance. – Disagree in relation to activities or comments made during the Institutional Tutoring Schedule (ITS). – Lack of student attendance at meetings.	– Unstable and disruptive internet connection for access to virtual meetings. – Students did not give adequate importance to tutoring. – The tutors had difficulties communicating with the tutees because they did not have 100% knowledge of the technology (Microsoft Teams).

Source: Own Elaboration

Tutorial accompaniment is important at each stage of academic training, the assignment and relevance of the tutor makes it possible to provide adequate advice and support to the student.

The following shows the advantages and disadvantages of tutorial accompaniment concerning four tutors assigned from university entrance in 2019 to the current school term 2022.

Table 2 Advantages and disadvantages of tutors by school period

Period	2019-2020	2020	2021-2022	2022
Tutor	1	2	3	4 (current)
Reason for change	Assignment on entry-change request (one-time)	Reallocation	Pandemic Reassignment (not requested)	Reassignment in support of the tutor
Advantages	– Tutor with professional experience in the tourism area.	– He was a kind and charismatic teacher. – It gave you the necessary attention in relation to AFI`S.	– He is a focused, responsible and thorough tutor. – Facilitates the assignment of AFI`S virtually.	– She is a kind and responsible tutor and teacher. – Facilitates the assignment of AFI`S. – He gives the appropriate and necessary importance to his tutees. – He is interested in the personal and academic well-being of his students and tutees.
Disadvantages	– She has work activities in another institution, so her availability is low and does not allow for efficient mentoring support.	– It required that the meetings for the assignment of AFI`S be on-site due to inconveniences during the pandemic, sometimes making it difficult to carry out this indication.	– Handles basic communication.	– She is the Institutional Tutoring Coordinator and is constantly busy, which prevents her from having a more relaxed schedule to spend more time with her students.

Source: Own Elaboration

Table 2 shows the accompaniment of each of the tutors during the tutor's school career, where the advantages and disadvantages of the different school periods can be observed.

Results

The following are the results obtained in terms of accreditation and load of Integral Formation Activities (AFI`S) and the tutor's academic performance.

Graph 1 AFI`S hours charged per tutor

Tutor 1: 0 hours
Tutor 2: 0 hours
Tutor 4: 48 hours
Tutor 3: 80 hours

- Tutor 1
- Tutor 2
- Tutor 3
- Tutor 4
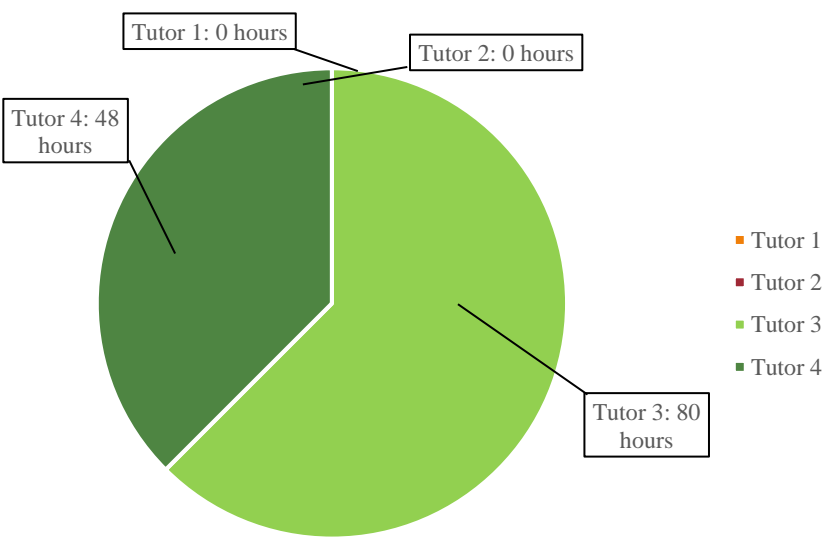
Own Elaboration

Interpretation

The graph shows the total number of hours charged during each assigned tutoring period. During the 2019-2020 was assigned tutor one, period in which 3 credits were completed, that is 48 hours, which was recorded in the AFI`S notebook, at the time of collecting the hours these hours were delivered to tutor one. The same tutor misplaced the notebook, and so it was necessary to change tutor for the first time to get support with the management of the lost time, and so the change to tutor two during 2020, who commented that he would provide the support, thus arising the inconvenience of recovering and assigning the lost hours due to the distance and lack of communication because of the pandemic. In the 2021-2022 period, reassigned to tutor three, who contacts tutor one to make up and upload the 48 hours missed (3 credits); completed another 32 hours (2 credits) during her tutoring period, all picked up by the same tutor. Currently assigned to a fourth tutor who has uploaded 48 hours (equivalent to 3 credits) into the Integral Formation Activity System (SIAFI), being accredited for Integral Formation activities (AFI).

Graph 2 College career path: Subjects passed, in progress and missing

Own Elaboration
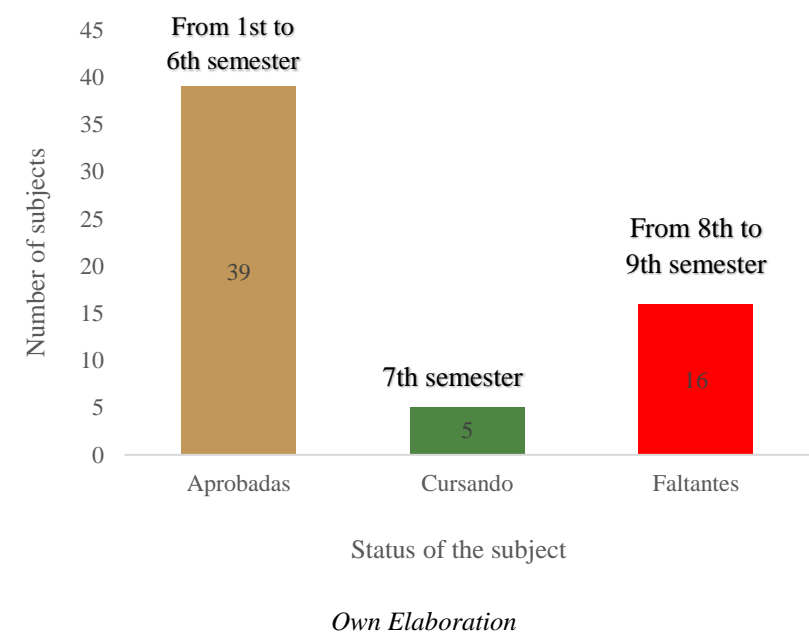
Interpretation

Of a total of 60 subjects that make up the curriculum map of the educational program Bachelor's Degree in Tourism Management, 31 subjects are basic, 20 are professionalizing, 5 are terminable and 4 are optional. Currently, 39 subjects have been passed, 0 have been failed, 5 are in the seventh semester of the program, with an average of 93.84 for the sixth semester and 16 subjects are missing, including Social Service and Professional Internships

Graph 3 Average obtained per semester
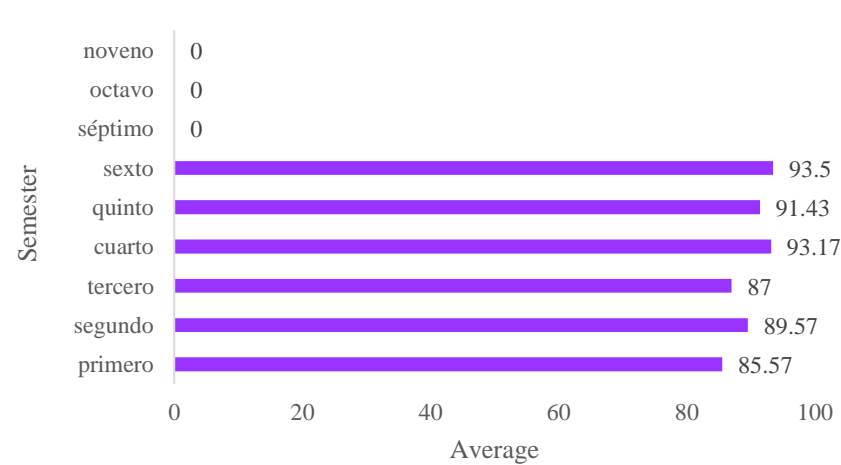
Source: Own elaboration, information consulted from the Kardex available in the student portal

Interpretation

This graph shows the average obtained per semester during the tutor's school career. The highest score is 93.5 in the sixth semester, while the lowest score is 85.57 in the first semester. These results reflect the importance of the tutor's presence in the tutorial accompaniment.

The lack of tutorial accompaniment and interest of the tutor towards the students can be demotivating and detrimental, resulting in apathy and low participation, which is reflected in the grades.

Conclusion

Some of the factors of tutorial support are related to academic performance and an adequate school trajectory, as well as student motivation and interest in their academic preparation, the result obtained is related to tutor three, which provided greater benefits, such as dissemination of information and technological support.

The current tutor (tutor 4) has provided benefits, supporting with the load of 48 AFI´S hours (equivalent to three credits), thus obtaining a total of 128 hours (equivalent to eight credits). Likewise, he has been favored in terms of the implementation of individual tutorials, generating a greater participation by both parties and a closer tutorial accompaniment in relation to previous accompaniments.

It is necessary to consolidate that group and individual tutoring in virtual, on-site or hybrid modality are an important basis for tutorial accompaniment, favoring integral development, considering the perspective that the actions of adequate counseling have a positive impact on the permanence, performance and graduation of the student being tutored.

Recommendations

As a result of the analysis of this research, the following recommendations can be mentioned:

−   Availability of individual tutoring by tutors.
−   Assertive and punctual communication by both parties (tutor and tutee).
−   Participation and willingness of both parties (tutor and tutee).
−   To have planning and organization on the part of individual and small group tutors outside the Institutional Tutoring Schedule (ITS).

It is of vital importance to take into account the pertinent recommendations to obtain a better tutorial performance, managing an adequate accompaniment for the tutor's school performance and a motivation that facilitates the tutor's interaction.

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Chapter 2 Advantages and disadvantages of group and individual virtual tutoring by UNACAR International Business students

Capítulo 2 Ventajas y desventajas de la tutoría virtual grupal e individual por estudiantes de Negocios Internacionales de la UNACAR

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Abstract

The possibility of studying and successfully completing a degree offers greater opportunities for personal growth, getting a formal job that meets professional expectations. The tutorial accompaniment at the higher level provides advantages such as constant and effective advice, adding to the student's training and generating a satisfactory and/or outstanding educational career. This study is of a qualitative and quantitative nature with a focused character that expects to describe the advantages and disadvantages of group and individual virtual tutoring of International Business bachelor students of the Universidad Autonoma del Carmen of the generation 2018 and 2019. According to the presented information, group and individual virtual tutoring are functional and generate a positive impact on academic performance, so it is necessary to continue with both group and individual tutoring to graduate and get a bachelor's degree from the selected educational program.

Academic, Accompaniment, Successfully

Resumen

La posibilidad de estudiar y culminar con éxito una carrera ofrece mayores oportunidades de crecimiento personal, consiguiendo un trabajo formal que cumpla con las expectativas profesionales. El acompañamiento tutorial en el nivel superior brinda ventajas como una asesoría constante y eficaz, sumando a la formación del estudiante y generando una trayectoria escolar satisfactoria y/o sobresaliente. Este estudio es de carácter cualitativo y cuantitativo con carácter focalizado que pretende describir las ventajas y desventajas de las tutorías virtuales grupales e individuales de los estudiantes de licenciatura en Negocios Internacionales de la Universidad Autónoma del Carmen de la generación 2018 y 2019. De acuerdo a la información presentada las tutorías virtuales, grupales e individuales son funcionales y generan un impacto positivo en el rendimiento académico, por lo que es necesario continuar con las tutorías tanto grupales como individuales para egresar y obtener el título de licenciatura del programa educativo seleccionado.

Académico, Acompañamiento, Exitosamente

Introduction

Given the current context generated by the COVID-19 pandemic, and with the aim of providing attention to students at the higher education level at crucial moments, one of the important services that had to move from the on-site to the distance modality was academic tutoring (Díaz, 2021, cited in Ponce, et al., 2022). From the vision of the National Association of Universities and Institutions of Higher Education, tutorials are defined as a service of accompaniment and support provided individually by the professor to the student, with the aim of helping the student to face his or her problems and to adapt to the university environment, to achieve his or her academic objectives and to face the commitments of future professional practice (Anuies, 2000, cited in Ponce, et al., 2022).

At the Universidad Autónoma del Carmen, during the virtual contingency, classes were resumed online, as well as tutorials. Each tutor was in contact with his or her students to continue guiding them in the new online modality. All activities were carried out using the Microsoft Teams technology platform.

Literature review

Education, at all levels, plays an important role, as it is the main factor in the progress of nations; in practically all countries of the world, it is considered the ideal means of training the citizens that today's society needs to face global challenges. For its part, at the national level, the Sectoral Programme of Education 2013-2018 points out that in higher education Mexico finds one of its main riches for social, political and economic development (SEP, 2013, as cited in García, et al., 2016).

The figure of the tutor dates back more than 5,000 years in Africa, where there were individuals who acted as guides in preparing young people to take on the various roles required within the community. The same author points out that for the Greeks, a tutor or mentor meant an adoptive parent, a person who took responsibility for the physical, social, intellectual and spiritual development of young people, which is currently a reference for the implementation of tutoring processes (Carr, 2000, as cited in Espinoza & Ricaldi, 2018).

Some antecedents of tutoring in higher education in our country are the experiences of some faculties of the UNAM, dating back to the early forties, particularly the proposals developed in the faculties of Chemistry and Political and Social Sciences. In these pioneering experiences, the first definitions of a tutorial system were elaborated, and the tutor was identified as a guide, that is, as a figure close to the student regarding academic and research activities. These first approaches were refined in various institutions, so that by 1970 the figure of the tutor had already been formally recognized in graduate study plans and programs (Fresán and Romo, 2011, as cited in Ponce, et al., 2022).

We consider that tutoring involves communication and interaction processes on the part of teachers; it implies personalized attention to students, based on the knowledge of their problems, needs and specific interests (Obaya & Vargas, 2014). We can define it as a teaching intervention in the educational process of an intentional nature, which consists of close, systematic and permanent accompaniment to the student, to support and facilitate the process of construction of learning of various types: cognitive, affective, sociocultural and existential (Narro & Martiniano, 2013).

In the current educational context, a tutor is considered to be the teacher, who provides support to students, in a real or virtual space, so that they develop their cognitive potentialities in the learning process beyond the current competence of skills they possess and with which they enter the teaching situation (Pagano ,2008, as cited in Espinoza & Ricaldi, 2018).

Tutorial functions are divided into the guiding function, centered in the affective area and the academic function, which takes its center in the cognitive area. These functions are the basis for adequate tutoring.

It is possible to think that the work of a tutor is similar to that of a teacher, which is a mistake. The difference between a teacher and a tutor is that the former promotes, coordinates and evaluates students, while the tutor advises, encourages and stimulates the development of attitudes, integration skills, decision-making capacity and interest for the student to join and remain in the educational and professional environment (Advantages of studying online, 2021).

In university education, tutoring contributes to the knowledge of students, individually and as a group, to ensure that the university has the necessary information that allows it to carry out its educational action properly and thus prevent complex problems that hinder their education inside and outside the university (UNIVA, 2022).

It is of utmost importance to pay the greatest attention to the first two semesters of the career, since it is when students experience the transition of diverse ruptures and the challenge of adapting to new situations, including the need to rectify decisions that may be transcendental in their lives, given that the greatest proportion of college dropouts or dropout of students occurs precisely in the first year of university education (Tinto, 1992, as cited in Obaya & Vargas, 2014).

There are several tutoring modalities in which the student can be integrated, and according to Martínez and Barrios (2012), they are the following: individual meetings; group meetings; tutoring activities in the group/class; tutoring subject; complementary activities such as courses or workshops; informative activities such as conferences; lectures and other media; individual or group peer activities; channeling to internal and/or external services; tutoring activities supported by virtual media.

Regarding the functions of the tutor, Romo (2010, as cited in Ponce, et al., 2022) refers that he/she should be a permanent promoter of the student's communication with the educational actors and the college context, as well as the development of thinking skills that allow him/her to transfer the acquired knowledge for the resolution of problems in the personal and social dimensions.

Analysis of group and individual tutoring at the Universidad Autónoma del Carmen

The aim of this research is to show the academic performance, the academic trajectory and the virtual accompaniment of each student during the on-site and virtual tutorials.

Upon entering UNACAR, each student is assigned a tutor who will accompany them throughout their academic career; these tutorials are individual and/or can be shared with several students at the same time (group tutorials). At the beginning of the first semester of the bachelor's degree, each tutor contacts his or her students for an interview, which is an appropriate place to introduce oneself and to get to know different aspects such as personal and academic objectives, goals in the chosen career and to receive an initial, continuous and timely orientation in the course of the university's academic training.

Group tutorials are held institutionally, Every Friday from 11:00 to 13:00 in all UNACAR faculties. In the group tutorials they provide essential and interesting information to keep in mind and make good decisions, some of the topics are the following:

– Curriculum mapping
– Psychopedagogical support
– Optional insurance and scholarships
– National or international student mobility
– Requirements for social service and professional internships
– Forms of graduation
– Integral Formation Activities (AFI)

The Integral Formation Activities (AFI) are important for the formation of knowledge in students. To obtain the AFI certificate, 128 hours of comprehensive training activities must be credited, which make up 8 credits. It consists of activities such as attending conferences, seminars, plays and films, among a variety of options, which help in the academic and personal formation.

Methodology

The methodology of this research is qualitative and quantitative with a focused character. Qualitatively, the pros and cons of group and individual tutoring in the on-site and virtual modalities are developed, this from the points of view of ten tutored students of the Universidad Autónoma del Carmen (UNACAR), who are studying the Bachelor's Degree in International Business; six students of the 2018 generation (Álvarez, Chablé, Fabila, López, Marcano and Zamorano), who are in their ninth semester, and four students of the 2019 generation (De La Cruz, Hernández, Mendoza and Miravete), who are in their seventh semester.

It also has a quantitative approach, as numerical data related to the educational trajectory of the ten tutored students are presented through graphs. The study is of a focused nature, based on the tutorial experience before and during the pandemic in the period 2018-2022.

Results

Advantages and disadvantages of group and individual tutoring in the on-site and virtual modality.

It is important to mention that the information collected and presented from the students, they have different tutors, who have accompanied them since their entrance to the university. Below are the comparative advantages and disadvantages of group and individual tutoring, both, in virtual and on-site modes, information according to the experiences and criteria of the ten tutors.

Table 1 Advantages of on-site and virtual group tutoring

Group tutoring	
Presential	Virtual
1. Direct contact with tutors	1. Ease of access from home
2. Attention to students' comprehension problems	2. Savings in transportation costs
3. Interaction with peers	3. Connectivity from any device
4. Clearing general doubts	4. Punctual attendance
5. Dynamics to interact more	5. More accessible general advisories from Microsoft Teams

Source: Own Elaboration

Table 1 shows on-site group tutoring, which has the advantages of allowing interaction with tutors and classmates, topics are more specific and understandable, in face-to-face tutoring if a student has doubts about the topic being covered they can raise their hand and be heard at the same time. The benefits of virtual group tutoring include: no need to travel to the university, saving on transport costs; tutoring can take place anywhere and on any device with an internet connection through the Microsoft Teams application.

Table 2 Disadvantages of on-site and virtual group tutoring

Group tutoring	
Presential	Virtual
1. Time spent commuting to the university	1. Connectivity problems
2. Expenditure on commuting	2. Lack of adequate equipment
3. Uncertainty in the tutor's disposition	3. Environmental distractions
4. No snacks consumed	4. Apathy and discouragement
	5. Low participation
	6. No interaction with peers
	7. Incidental occurrences

Source: Own Elaboration

Table 2 shows the disadvantages of on-site group tutoring: if the student was not at the university, he/she had to travel to attend tutoring sessions, generating economic expenses; food could not be consumed during tutoring hours. If it was virtual, the disadvantages were: sometimes the student did not have good connection or adequate equipment to attend the tutorials; there were distractions in the place where he/she attended the tutorials; he/she felt apathy and discouragement when he/she was in the house, so sometimes he/she did not connect to them; there was little student participation and no peer interaction; by chance, for example during a storm, he/she was left without electricity and it was impossible to attend the tutorials

Table 3 Advantages of individual on-site and virtual tutoring

Individual tutoring	
Presential	Virtual
1. Interaction with the tutor	1. Punctuality
2. More confidence (being face-to-face with the tutor).	2. Asynchronous communication
3. Counseling for AFIS, social service, internships, scholarships and student mobility.	3. More accessible AFIS reception
4. More personal question resolution	4. Personal questions
	5. Connectivity from any device
	6. Personal counseling more accessible from WhatsApp, Microsoft Teams and institutional e-mail.

Source: Own Elaboration

Table 3 shows the advantages of on-site individual tutoring: students interacted more with the tutor, building trust between tutor and student, to express their doubts about AFIS, social services, professional internships, scholarships and student mobility, or any other topic or event of interest. In the virtual one-to-one tutorials, the advantage was that the sessions started on time; if there was any doubt, it was enough to let the tutor know by text message via WhatsApp or Teams, as well as by email at a time other than the scheduled tutorial time, as long as it was within the tutor's schedule.

Table 4 Disadvantages of individual on-site and virtual tutoring

Individual tutoring	
Presential	**Virtual**
1. Unpunctuality 2. Uncertainty in the guardian's disposition	1. Not being able to see the tutor face-to-face. 2. No interaction with the tutor 3. Apathy and discouragement 4. Unfortunate cases

Source: Own Elaboration

Table 4 shows the disadvantages of individual tutoring in the on-site mode: the students arrived late, they felt uncertain about the tutor's willingness to express their doubts. While the disadvantages of virtual tutoring were that sometimes there were few interactions between the tutor and the student, and there was apathy and discouragement in establishing communication with the tutor.

Graph 1 Gender of tutees
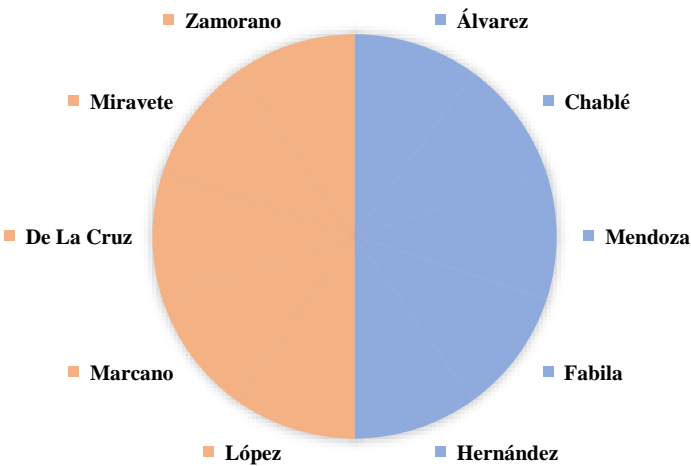
Source: Own Elaboration

Graph 1 shows the gender of the ten participating tutors. The salmon color represents women and the blue color represents men, so it can be seen that there are five women and five men.

AFIS Accreditation

The results are shown in terms of AFIS accreditations by the ten tutees.

Graph 2 Accredited AFIS
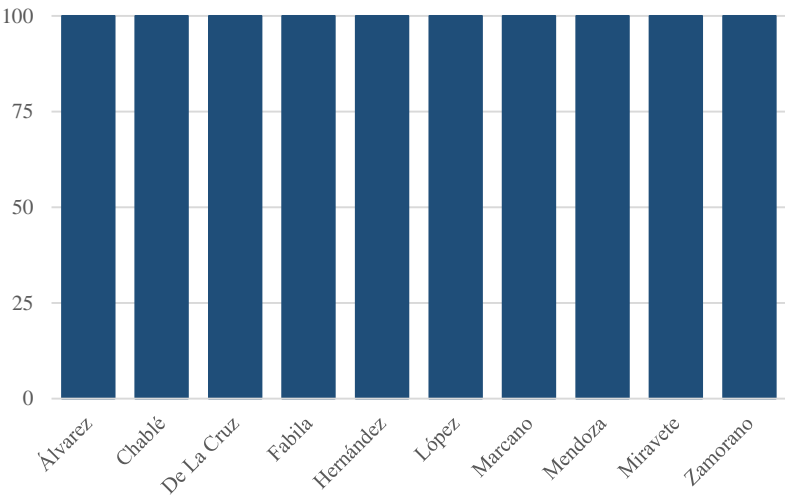
Source: Own elaboration with data obtained from the Kardex, downloaded through the student's portal of the Universidad Autónoma del Carmen

Graph 2 shows the results of the AFIS accreditation of the ten tutored students, which reflects the release of 128 hours, equivalent to 8 credits.

It is worth mentioning that these AFIS were released in the fifth (De La Cruz, López and Miravete), sixth (Álvarez, Mendoza and Hernández), seventh (Marcano, Zamorano and Fabila) and eighth (Chablé) semesters, which makes it possible for them to focus only on their remaining subjects, professional practices and social service (see graph 3, regarding social service). The accreditation of AFI's can be released from the 4th to 6th semester, so that by the 7th semester the student must have covered the 8 credits of AFIS and continue successfully its curricular map, favoring the academic performance.

Graph 3 Social Service

Source: Own elaboration with data obtained from the Kardex, downloaded through the student's portal of the Universidad Autónoma del Carmen

Graph 3 shows the release of the Social Service of six of the ten students. The Social Service can be taken after having completed 70% of the subjects of the curriculum map; the students Álvarez, Chablé, Fabila, López, Marcano and Zamorano have already released their social service, unlike the four students (De La Cruz, Hernández, Mendoza and Miravete) in the 7th semester, who have not yet reached 70%. Below is a chart of the subjects that each student has passed, as well as those that they are taking and those that they have yet to take.

Graph 4 Academic performance - previous semester average

Source: Own elaboration with data obtained from the Kardex, downloaded through the student's portal of the Universidad Autónoma del Carmen

Graph 4 shows the average of each student obtained in the semester immediately prior to the one they are studying. Álvarez, Chablé, Fabila, López, Marcano and Zamorano, in their eighth semester, took 6, 6, 6, 6, 3, 3, 3, 6 subjects, respectively, and obtained an average of 86.67, 85.33, 86.83, 92, 96.67 and 98.71, respectively.

De La Cruz, Hernandez, Mendoza and Miravete in their sixth semester, took 7, 8, 8, 8 and 6 subjects, respectively, obtaining an average of 93.83, 84.62, 79.5 and 96.83, respectively. Most of the students demonstrated good academic performance in the January-June 2022 period.

Graph 5 Academic performance - general average

Source: Own elaboration with data obtained from the Kardex, downloaded through the student's portal of the Universidad Autónoma del Carmen

Graph 5 shows the general average of each student, that is, the average that they have accumulated so far in their academic career. Álvarez has an overall average of 88.00, Chablé 86.00, Fabila 89.00, López 93.00, Marcano 93.00 and Zamorano 94.16, all of whom are ninth semester students. On the other hand, the seventh semester students have a general average so far of: De La Cruz 95.75, Hernandez 86.00, Mendoza 84.00 and Miravete 95.00.

This average is reflected by the number of subjects each student has taken and the grades they have obtained by passing the subjects, which are presented in graph 6.

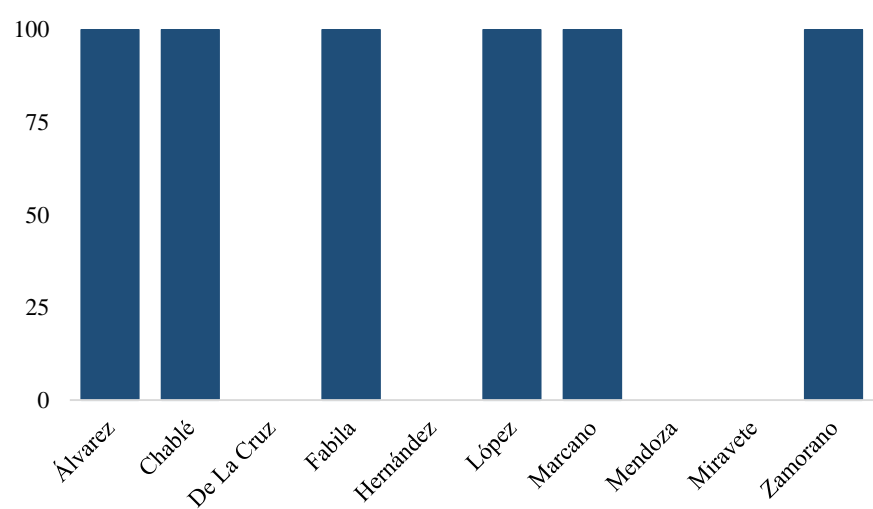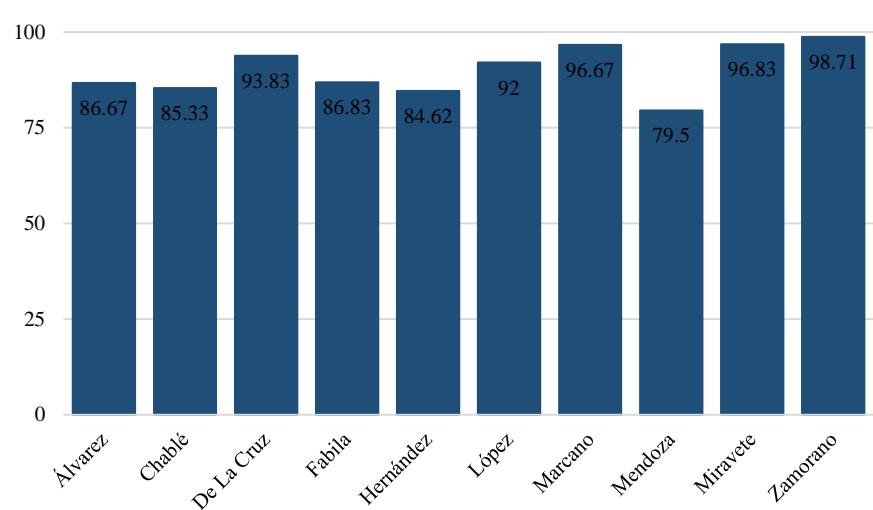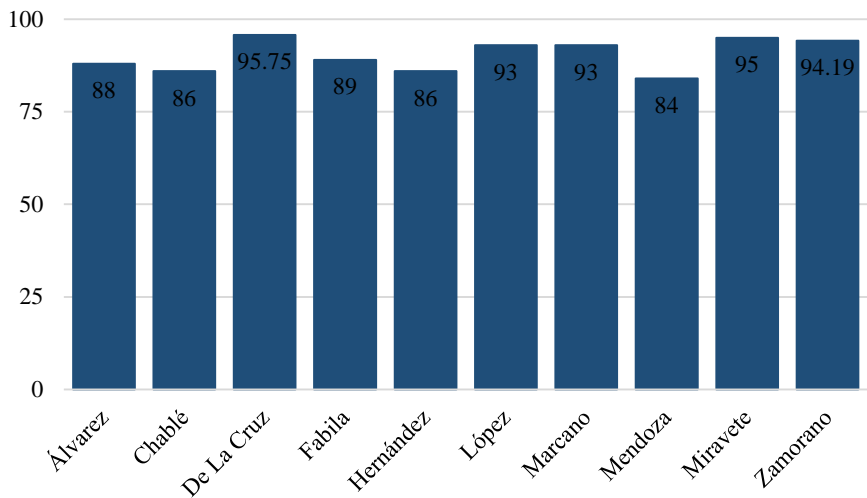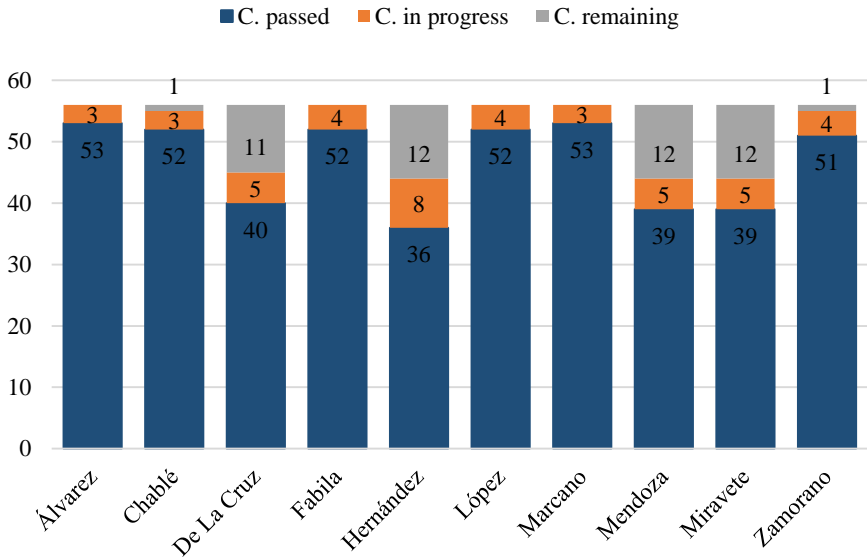**Graph 6** Courses passed, in progress, and remaining subjects

Source: Own elaboration with data obtained from the Kardex, downloaded through the student's portal of the Universidad Autónoma del Carmen

Graph 6 shows the subjects that the students have passed, as well as those that they are taking in their current semester and those that they have yet to pass. The International Business education program consists of 56 subjects, apart from Social Service and Professional Internships. As shown in this graph, of the 9th semester students, Chablé and Zamorano only have one course to take, unlike Álvarez, Fabila, López and Marcano, who do not have any more courses to take after passing the courses they are taking; as shown in graph 2 above, they have already completed their social service, but are still missing their professional internships. As for the 7th semester students (De La Cruz, Hernández, Mendoza and Miravete), it can be seen that they have only a few subjects left to take, in addition to their social service and professional internships.

Conclusions

According to Ariza and Ocampo (2004), a correct and timely tutorial accompaniment contributes to the integral formation of the student, generates effective gains in the learning of the disciplines, seeks to strengthen the students' abilities as well as their weaknesses and guides the participants in the effective and appropriate use of the opportunities.

In the example presented in this article, it can be seen that in the case of the ten students, they had constant tutorial support throughout their years in higher education. From the beginning, they were given an orientation that introduced and familiarised them with the functioning of the Universidad Autonoma del Carmen.

Since the beginning of 2020, all academic institutions have found it necessary to adapt to a virtual system in order to continue their activities due to the COVID-19 pandemic, including the continuity of tutorial support. According to Herrera, et al. (2022), "in virtual education due to the pandemic, the figure of the tutor is reaffirmed as necessary to orient, guide and support the student in their trajectory, it has an academic and personal impact, for some students it is the link between virtual education and the real environment of their educational institution". As shown in Tables 1, 2, 3 and 4, tutoring, both individual and group, was beneficial and detrimental in different ways.

However, the advantages and disadvantages in both modalities generated a great impact on the academic performance of the students, since the strategies of each of their tutors were functional and allowed them to continue with the orientation and to cover the needs of the students in the virtual environment.

According to the research, it can be analysed that the individual and group tutoring contributes to the accompaniment and the academic performance of the tutored students, ensuring, for example, the release of the AFIS (Graph 2) in the appropriate semesters to be able to continue with the program of the curricular map in a coherent way to the appropriate semester to which they are advancing, the release of the social service (Graph 3) at the right time so that it does not cause delays in the graduation and obtaining the degree.

In the case of the ten tutored students, it can be seen that, despite the different circumstances they have gone through in their university career, thanks to the good tutorial support, their academic performance has not been negatively affected, since five of the ten tutored students had a good average in the last semester (Graph 4), which was carried out in the virtual modality, the rest of the tutored students obtained a regular performance, the general average (Graph 5), which includes the semesters before and during the pandemic, as well as a good progress in the subjects taken according to the semester they are in (Graph 6).

With the aim of ensuring that group and/or individual tutoring, both on-site and virtual, can continue to be satisfactory for the good development of the tutored students during their academic career, it is suggested:

−	Continue to implement virtual tutoring even if the student returns completely to presential classes in order to reduce the economic expenses of the students with respect to transportation.

−	Continue to implement group tutoring in a presential manner so that students continue to have more interaction with their tutors and classmates.

−   Conduct group and/or individual tutorials in a hybrid way, that is, both presential and virtual, in case some students are unable to attend in presential manner due to unforeseen circumstances.

−   Carry out individual tutorials online if the doubts are not so extensive or difficult to understand; otherwise it is better to carry out individual tutorials in a presential manner, since there would be the possibility of a better understanding and communication between tutor and student.

−   Introducing new strategies or techniques so that students have more confidence and therefore better access to their tutors, and therefore better guidance and a successful academic career path.

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Chapter 3 Virtual tutorial support to promote the comprehensive education of students in the Open Education System of the Universidad de Veracruz

Capítulo 3 El acompañamiento tutorial en la modalidad virtual para favorecer la formación integral de estudiantes en el Sistema de Enseñanza Abierta de la Universidad de Veracruz

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Abstract

This document presents the results of an educational research focused on understanding the perception of students from the Academic Area of Humanities at the Open Education System (SEA, Sistema de Enseñanza Abierta) of the University of Veracruz (UV), Xalapa region, regarding virtual tutorial support to enhance their comprehensive education. A total of 121 students participated, 60 from Pedagogy and 61 from Law. The study was exploratory with a quantitative approach, and a questionnaire with 13 items was designed and administered. The results provided insight into what is happening in virtual tutoring at the Open Education System, and actions were proposed to improve and complement this substantive function in Higher Education Institutions with a face-to-face modality.

Tutoring, virtual modality, comprehensive training

Resumen

Este documento presenta los resultados de una investigación educativa enfocada a conocer la percepción de los estudiantes del Área Académica de Humanidades del Sistema de Enseñanza Abierta (SEA) de la Universidad Veracruzana (UV), región Xalapa, sobre el apoyo tutorial virtual para mejorar su formación integral. Participaron 121 estudiantes, 60 de Pedagogía y 61 de Derecho. El estudio fue exploratorio con enfoque cuantitativo, se diseñó y administró un cuestionario con 13 ítems. Los resultados permitieron conocer lo que sucede en la tutoría virtual en el Sistema de Educación Abierta, y se propusieron acciones para mejorar y complementar esta función sustantiva en las Instituciones de Educación Superior con modalidad presencial.

Tutoría, Modalidad Virtual, Formación integral

1. Introduction

Academic tutoring is a substantive function of Higher Education Institutions, its main feature is to provide support to students in their school career guiding academic, personal, professional, integration and permanence decisions, to promote this process, the attention and monitoring have been given with greater tendency in the face-to-face modality, However, since the confinement by *COVID-19*, the modality migrated to a virtual modality in which there have been situations that have favored the tutorial accompaniment, however, there are some disadvantages such as lack of connectivity or lack of ability to handle technology among others, which have been detected and options have been sought to improve the tutorial attention in virtual modality.

Currently we resume face-to-face academic activities, however, within some educational and tutorial practices the virtual modality is retaken, as in the case of tutoring offered to students of the Academic Area of Humanities of the Open Education System of the University of Veracruz, Xalapa region. Therefore, this study offers us a look at the virtual attention and suggestions to improve the tutorial processes in favor of the integral formation. The objective of the research was to know the perception of the students of the Academic Area of Humanities of the Open Education System of the University of Veracruz, Xalapa region, about the tutorial accompaniment in the virtual modality to favor their integral formation. The document was structured with the development of the topic where the characteristics of tutoring are described, the methodology used to achieve the objective, the analysis and interpretation of results and the conclusions with proposals for improvement.

2. Development

The confinement was originated by the SARS-CoV-2 pandemic, which is a virus that is part of the "Coronavirus" family of viruses, named for its "crown" shape. It is the most recent of the coronaviruses, identified in 2019 and causes the disease called COVID-19 (Government of Mexico, 2022), which caused the closure of academic and economic activities. In the case of educational institutions at the elementary, middle, and high school levels, they changed from a face-to-face modality to a virtual modality to continue with their academic work, in this change different benefits and disadvantages of virtuality became visible, in this context tutoring was not exempt from the use of technology for accompaniment. The National Association of Universities and Institutions of Higher Education (ANUIES, *Asociación Nacional de Universidades e Instituciones de Educación Superior*) defines tutoring as:

The individual accompaniment and teaching support, based on personalized attention that favors a better understanding of the problems faced by the student, on the part of the professor, regarding his adaptation to the university environment, the individual conditions for an acceptable performance during his training and for the achievement of the academic objectives that will allow him to face the commitments of his future professional practice (National Association of Universities and Institutions of Higher Education, 2000, p. 4).

At the University of Veracruz, the Institutional Tutoring System aims to:

Support students in solving academic problems, promote their autonomy and integral formation, as well as contribute to improving their academic performance, through individual or small-group attention. To govern its activities, there is a Regulation of the Institutional Tutoring System, which incorporates provisions aimed at making the operation of tutoring in educational programs more efficient (University of Veracruz, 2012, p.3).

Academic Tutoring in the University of Veracruz

Based on Article 7 of the University of Veracruz Tutoring Regulations (2012), academic tutoring refers to the monitoring by an academic, called Academic Tutor, of the academic trajectory of one or more students during their stay in the corresponding educational program, to guide them in the decisions related to the construction of their professional profile.

Dimensions of UV Mentoring

Tutorial activity at the University of Veracruz is oriented in four dimensions, which are the following:

−   Academic dimension: Oriented to the monitoring of the student's school career.

−   Personal dimension: Refers to strategies to contribute to developing values and autonomous, responsible, and informed decision-making.

−   Professional dimension: Related to the support and guidance to students in the definition of their professional objectives and the development of an ethical attitude.

−   Dimension of integration and permanence: focused on strengthening the student's sense of belonging to the institution and fostering commitment to their academic education (University of Veracruz, 2022, p. 8).

In this sense, the orientation developed by the tutor contemplates the main aspects that should guide the tutor to achieve an adequate management of the problems to be presented, consisting of providing adequate, relevant, and updated information, so that each tutor decides freely from their needs and possibilities, always making an informed decision making.

Modalities of tutorial attention at UV

With reference to the modalities of attention at the UV, in Article 42 of the Tutoring Regulations, there are the modalities of attention that refer to the environments in which the tutorial activity is developed, and they can be face-to-face and non-face-to-face. The use of the modalities will be in accordance with the characteristics of the educational program, the students, the tutors, the type of tutoring, and the objectives of the tutoring session.

The modalities can be I. Face-to-face: characterized by the fact that the relationship between the tutor and the tutored is face-to-face, in a predetermined physical space, and can be individual or group, which should be grouped according to common profiles; and II. Non-presential: it is characterized because the relationship between the tutor and the tutored is mediated by physical distance and is asynchronous (University of Veracruz, 2012, p. 17).

The non-face-to-face modality was considered during the period of confinement due to the COVID-19 pandemic, and to conduct the activity it was necessary to have technological tools that favored the attention and follow-up of the tutors. Our university conceives tutoring in the face-to-face modality, with the objective of providing adequate accompaniment to those being tutored, to generate the rapprochement and bonds of trust necessary for better counseling. It is important to mention that face-to-face tutoring should be strengthened with other digital means of communication, to bring information closer and to ensure that the tutor's presence is constant and permanent.

Aims of Integral Formation at the University of Veracruz

With reference to the integral formation that must also be promoted from academic tutoring, it is framed through four purposes that include intellectual, human, social, and professional aspects. Each one of these addresses the following aspects:

−   Intellectual training. This type of training tends to foster in students the logical, critical, and creative thinking necessary for the development of knowledge, especially those of a theoretical nature that circulate in a privileged manner in the university environment; as well as to foster an attitude of permanent learning that allows self-training. A student trained in this way develops the ability to reason, analyze, argue, induce, deduce, and others, which allows the generation and acquisition of new knowledge and problem-solving.

−   Human formation. Human formation is an indispensable component of integral formation and is related to the development of attitudes and the integration of values that influence the personal and social growth of the human being as an individual. Human formation must address the subject in its emotional, spiritual, and corporal dimensions.

−   Social formation. Strengthens the values and attitudes that allow the subject to relate and coexist with others. From this perspective, it fosters awareness, recognition, and the correct location of the various social problems; it strengthens teamwork, respect for opinions that differ from their own, and respect for cultural diversity.

−   Professional training. This development is oriented towards the generation of knowledge, skills, and attitudes aimed at the knowledge of the profession. Professional training includes both an ethics of the discipline in its practice and new knowledge that favors the insertion of graduates in favorable conditions in the current situation of the world of work (University of Veracruz, 1999, p. 23).

Technological resources in the non-face-to-face modality

Regarding the use of Information and Communication Technologies (ICT) in university education, Paredes, Vargas, Inciarte, and Mercado (2023, p. 19) mention:

That for more than a decade, Information and Communication Technologies (ICT) have promoted renewed ways of promoting teaching-learning processes, especially in higher education, this projection accelerated as a result of the effects generated by the COVID -of the XXI century, which caused the adaptation of renewed technological platforms to overcome the gaps of connection and accessibility in environments mediated by intra and internet in institutions. In addition to the above, there is the importance of the creation and renewal of online academic programs and assertiveness in decision-making (governance) in higher education institutions (HEIs) to maximize the usefulness of ICTs (p. 19).

In this regard, regarding the use of technology in the non-face-to-face modality during the pandemic, the National Association of Universities and Institutions of Higher Education presented a Report of the National Survey COVID-19: The Student Community facing the Health Emergency, it is mentioned that, from October 20 to November 29, 2021, questionnaires were applied to 273,177 students, representing a response rate of 46.2%, from 486 institutions. The document presents a section on technological resources to receive distance education where it is mentioned that:

During the confinement, the most important and necessary resources for students to continue their classes at a distance were computing devices and stable Internet access. Faced with the lack or limitation of any of these elements that directly impacted student performance, the vast majority of HEIs took different support measures for their students. Even so, 43.2% of students used a cell phone as their main device to continue their studies (National Association of Universities and Institutions of Higher Education, 2022, p. 53).

Regarding the technological platforms used by HEIs to support education. 80.7% of the students report that one of the three main electronic media most used by their institution to communicate with students was email, 78% point out that WhatsApp was the second most used electronic media, and 44.7% share that the third was the Google Classroom platform. Additionally, students mentioned other computer platforms and other means of communication that educational institutions used during the confinement to communicate with students, among which the videoconferencing platforms Google Meet with 20.1% of students mentioning it, and Zoom with 17.9%, as well as the educational content management tool Moodle with 17.6% and finally the use of "Other platforms" with 17.2% (ANUIES, 2022, p. 77).

Contextual framework

The Open Education System (SEA) of the University of Veracruz (UV) is an academic entity founded in 1980, was created to provide higher education opportunities to people who for distinct reasons such as work or family responsibilities, geographical isolation, or lack of transportation, could not have access to a traditional school modality during the week. The SEA is present in all five regions of the UV and is committed to achieving and preserving standards of quality and social relevance. Currently, five undergraduate CS are offered: Accounting and Law in the five regions, Administration in the regions of Xalapa, Veracruz, and Orizaba, Pedagogy in Xalapa and Sociology in the Orizaba region; and the master's program in Human Rights and Constitutional Justice is offered in the Veracruz region (University of Veracruz, 2018, p. 2).

In the period August 2022 - January 2023, the Pedagogy Educational Program in the Xalapa region registered a population of 614 students, while in the SEA Xalapa Law program, 659 students are currently enrolled, this information was provided by the SEA Technical Secretariat. In each educational program, there are about 40 academic tutors and they serve between 5 and 30 students.

Each school period the tutors register their reports of attention to their students in which they describe the actions developed in the following dimensions: academic, personal, professional, and integration and permanence, in table 1, it is observed that in the period August 2021 - January 2022, 27 out of 40 tutors registered while in the period February - July 2022, 35 academic tutors registered.

Table 1 Register of tutors' reports

Number of tutors with a record of the tutors' reports	School periods
27 Academic tutors	August 2021 - January 2022
35 Academic tutors	February - July 2022

Source of reference: Own Elaboration

3. Methodology

The study was channeled in a quantitative research approach of exploratory type, in this regard Zafra (2006, p. 13) mentions that "exploratory studies are usually carried out when the objective is to examine a topic or research problem that has not been studied or has not been addressed before". In the case of virtual tutoring in the SEA, the perception that students have regarding this substantive function of the University of Veracruz and the modality has not been investigated, so the approach is suitable for research.

For data collection, the instrument used was the questionnaire, and the following indicators were considered for the design:

I.   General data
II.   Perception of mentoring
III.   Tutorial/virtual support
IV.   Benefits and disadvantages of the virtual modality

To calculate the sample size, the SEA Technical Secretariat was asked for information on the total number of students enrolled in the Law and Pedagogy Educational Programs of the SEA Xalapa region. Given that we wish to know opinions, the following formula was used to calculate a sample size for proportion with a finite population, since we have the information of the students currently enrolled in the educational programs of Law and Pedagogy of the Humanities Area of the SEA.

$$n = \frac{N z_{\frac{\alpha}{2}}^2 pq}{e^2(N-1) + z_{\frac{\alpha}{2}}^2 pq}$$

Where:
n = Sample size
N = Population (total number of students enrolled in each of the educational programs)
p = Probability of an event occurring
q = Probability that an event does not occur $(1-p)$
$z_{\frac{\alpha}{2}}$ = Confidence level (95% level)
e = Estimation error

There are 659 students currently enrolled in the SEA Xalapa Law program and 614 in the SEA Xalapa Pedagogy program, with this information the sample sizes for each of the educational programs are as follows:

−   Law

$$n = \frac{(659)(1.96)^2(0.5)(0.5)}{(0.12)^2(659-1) + (1.96)^2(0.5)(0.5)} = 61$$

−   Pedagogy

$$n = \frac{(614)(1.96)^2(0.5)(0.5)}{(0.12)^2(614-1) + (1.96)^2(0.5)(0.5)} = 60$$

A total of 121 participants from the Humanities Area of the Open Education System of the University of Veracruz, Xalapa region, 60 from Pedagogy and 61 from Law.

4. Results

To know the perception of the students of the Humanities Area of the Open Education System of the University of Veracruz, Xalapa region, about the tutorial accompaniment in the virtual modality to favor their integral formation, a questionnaire with 13 questions was elaborated and applied to 121 students, the analysis of results is described below.

General data

Of the 121 students who participated in the survey, 69% were female and 31% were male.

Table 2 shows the ages of the SEA Law and Pedagogy students surveyed, the youngest age recorded was 18 years old and the oldest was 58 years old, with an average age of 28.29 and a standard deviation of 8.71, that is, we can see that the age of the SEA students does vary, since the same system has older students.

Table 2 Descriptive statistics of the age of SEA law and pedagogy students

Variable	N	Media	Minimum	Maximum	Standard deviation
Age	121	28.39	18	58	8.71

Source of reference: Own Elaboration

On the other hand, it was asked which is the municipality of residence of the students of the Humanities area of the SEA, obtaining as an answer that 54.54% are students from Xalapa, 5.78% live in Coatepec, with 4.95% are from Banderilla and Emiliano Zapata, 2.47% say they are from Alto Lucero, Veracruz and Xico, 1.65% come from Cosaután, Jilotepec and Las Vigas de Ramírez, and 0.83% of the students are from various municipalities such as Acajete, Actopan, Nogales, Tlapacoyan, among others.

Perception of mentoring

Regarding the perception of tutoring, students were asked if they consider that academic tutoring favors their integral formation, 88% answered yes and only 12% said no. Of those who answered yes, they were asked in what way it favored them. Of those who answered yes, they were asked in what way it favored them, most of the students consider that it solves doubts, they have help, orientation, it serves as a guide, and the word "clarify" also stands out. In general, the students have the support to be oriented through academic tutoring, either about their school career, educational experiences, procedures, problems, etc.

Regarding student attendance to scheduled tutorials, Table 3 shows that 88% of the students said that they do attend tutorials and only 12% said that they do not.

Table 3 Attendance at tutorials

Student attendance at scheduled tutorials	Percentage
Do attend	88%
No attendance	12%

Source of reference: Own Elaboration

Tutorial/virtual support

Regarding virtual tutorial accompaniment, 94% of the students mentioned that they had received virtual tutoring before, during, and after the pandemic, and 6% said they had not, as shown in Table 4. Those who said no were asked for what reason and the answer that stood out the most was because there was not enough time to clarify doubts.

Table 4 Virtual support

Virtual tutorial support	Percentage
They have received virtual tutorial support	94%
They have not received virtual tutorial support	6%

Source of reference: Own Elaboration

Likewise, they were asked which are the technological tools by which they have communication with tutors, in Table 5, it is observed that 84.2% use WhatsApp, followed by Zoom with 65.5%, 46% use email, 28.1% use the Eminus platform, as well as 23.7% use Teams, 16.5% have contact by Google Meet, only 8.6% use Telegram and 4.3% use Facebook and another platform such as Hangouts and Google Chat.

Table 5 Percentage of technology tools used by academic tutors

Technological Tool	Percentage
WhatsApp	84.2%
Zoom	65.5%
E-mail address	46.0%
Eminus	28.1%
Teams	23.7%
Google Meet	16.5%
Telegram	8.6%
Facebook	4.3%
Another	4.3%

Source of reference: Own Elaboration

Regarding communication with their tutors through technological means, Table 6 shows that 55% of the students consider communication to be very good, 32% said it was good, 11% said it was fair, 1% said it was bad, and 1% said it was very bad; in general, the opinion of communication through technological means is considered very good by the students.

Table 6 Communication with tutors through technological means

Communication through technological means	Percentage
Very good	55%
Good	32%
Regular	11%
Bad	1%
Awfully bad	1%

Source of reference: Own Elaboration

Benefits and disadvantages of the virtual modality

Regarding the benefits and disadvantages of virtual tutoring, SEA Law and Pedagogy students were asked about the benefits of academic tutoring in virtual mode. In general, students felt that in the virtual modality, there is more flexibility to take tutoring virtually.

They were also asked about the disadvantages of tutoring virtually, and they responded that the connection, lack of internet, problems, communication, and signal. In other words, the main disadvantages are internet or connection problems.

Table 7 shows the opinion of the students regarding their satisfaction with the tutorial accompaniment through virtual media 42% said it was excellent, 26% said it was particularly good and good, only 4% said it was regular and 2% rated it as bad. With these answers, we observe that most of the students of the programs of Law and Pedagogy SEA feel satisfied with the tutorial accompaniment through virtual means.

Table 7 Satisfaction with tutorial support through virtual means

Communication through technological means	Percentage
Excellent	42%
Very good	26%
Good	26%
Regular	4%
Bad	2%

Source of reference: Own Elaboration

5. Conclusions and suggestions

In conclusion, it is highlighted that the tutorial accompaniment in the virtual modality has been significant for the students since through their perception the benefits and disadvantages of academic tutoring were identified during the period of confinement due to the COVID-19 pandemic, this accompaniment that migrated from the face-to-face to the virtual, the attention and follow-up by the tutor was manifested through various technological resources that allowed him to establish contact with the students being tutored. It should be noted that the essence of tutoring did not change with the modality, the challenge was to develop it with the resources that were available to address the dimensions: personal, professional, academic integration, and permanence.

On the other hand, it is recognized that there are some disadvantages in the virtual modality, such as internet or connection problems, these situations are reflected in the fact that they do not have communication with their tutors, and sometimes the tutoring schedules in the Open Education System overlap with classes, in addition to the fact that some students expressed that they do not feel accompanied by their tutor because the time allocated to the tutorial activity is not enough at least to clarify doubts.

However, in general, students consider that virtual tutoring has been satisfactory since it allows them to take it wherever they are, there is flexibility and good communication, so it is evident that both in the face-to-face and virtual modality the tutor fulfills the commitment to accompany their students during their stay in the institution, it is evident that technological resources are of great help to maintain different channels of communication with the students, together with good planning of the tutorial activity, providing reliable information and channeling the students in a timely manner in case of any problematic situation. Collaborative work with tutors, the Tutoring Coordination, the Educational Authorities, sharing successful experiences of tutorial accompaniment, as well as training and updating of good tutorial practices, is considered fundamental since these actions will be reflected in effective attention and follow-up to the tutored students. Finally, it is recognized that regardless of the modality, the tutorial accompaniment fulfills its fundamental function, which is to favor the integral formation of the student.

Considering the benefits and disadvantages of virtual tutorial support, the following is suggested:

– Through the results of this research, it is proposed to train tutors in technological means to optimally develop virtual tutoring and take advantage of institutional platforms such as Eminus 3 and Eminus 4.

– To make a greater diffusion of the dates of tutoring by each tutor and the Tutoring Coordination to socialize the scheduled dates.

– Schedule longer tutorials, as well as conduct individualized tutorials through the various platforms and technological tools, since those being tutored consider that the time allocated for tutoring is too little and they do not manage to resolve all their doubts.

– Verify that sessions are scheduled at times that do not overlap with other activities, such as work, classes, or personal matters.

– The virtual tutoring modality should remain, combined with face-to-face tutoring, so as not to lose the approach and provide sufficient flexibility for those students who for certain reasons cannot travel to the institution.

– Train and update tutors on topics related to ICT, assertive communication, and human relations.

– Plan individual and group tutoring considering students' credit progress (0-40%, 41%-70, 71% - 100%).

– Create interactive material for the dissemination of pertinent information for the tutor and mentee.

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Chapter 4 Implementation of Virtual Card in Microsoft Teams Platform

Capítulo 4 Implementación de Carnet Virtual en Plataforma Microsoft Teams

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Abstract

In 2020, due to the pandemic, higher education institutions had to make changes in most of their processes, to transform them from face-to-face to virtual, one of them was tutoring, however, we faced different challenges and adaptations, due to the conditions of the students of the different study programs, as well as the digital skills of the tutors, in other words, a process of transition from the face-to-face mode to the virtual mode, where several elements and activities had to be adapted in the virtual platform used, so that this accompaniment could be followed to each of the students of the Technological Institute of Campeche and fulfill an important task such as tutorials. The objective of this work was the implementation on virtual platforms of the activities carried out by the tutors of the Technological Institute of Campeche

Tutorías Virtuales, Plataformas Educativas, TIC en la Educación, Competencias digitales

Resumen

En el año 2020, debido a la pandemia, las instituciones de educación superior tuvieron que realizar cambios en la mayoría de sus procesos, para transformarlos de presenciales a virtuales, uno de ellos fue la tutoría, sin embargo, nos enfrentamos a diferentes retos y adaptaciones, debido a las condiciones de los estudiantes de los diferentes programas de estudio, así como a las competencias digitales de los tutores, es decir, un proceso de transición de la modalidad presencial a la modalidad virtual, donde se tuvieron que adecuar diversos elementos y actividades en la plataforma virtual utilizada, para que se pudiera dar seguimiento a este acompañamiento a cada uno de los alumnos del Instituto Tecnológico de Campeche y cumplir con una tarea importante como son las tutorías. El objetivo de este trabajo fue la implementación en plataformas virtuales de las actividades realizadas por los tutores del Instituto Tecnológico de Campeche

Tutorías Virtuales, Plataformas Educativas, TIC en la Educación, Competencias digitales

1. Introduction

With the arrival of the Pandemic caused by COVID-19, Educational Institutions, including Higher Education Institutions, were forced to make use of Virtual Platforms for teaching, therefore, teachers had to drastically change the activities they carried out in a face-to-face manner to virtual environments (Rojas, Martinez, & Riffo, 2020), because they had to continue carrying out both academic and administrative activities.

Within the Instituto Tecnológico de Campeche, campus of the Tecnológico Nacional de México, within the activities carried out by teachers, we have the Tutorials, it is worth mentioning that this activity is generally carried out by Full-Time Professors, as stated in the Academic Administrative Guidelines in chapter 15 called "Guidelines for the Operation of the Tutorial Programme" (TecNM, 2015).

As a result of the COVID- 19 pandemic, digital competences had to become indispensable for carrying out academic work, both for teachers whose activities are carried out in five areas, which are:

– Teaching,
– Tutoring,
– Liaison,
– Research and
– Academic management

For the students, the activities they carry out with the teachers are the Online Classes and the Tutoring Sessions, which had to be taken to the virtual plane. Based on the previous paragraph, we can state that these dizzying changes in the use of Information and Communication Technologies (ICT) also brought together two generations: the ICT natives and the ICT immigrants. In other words, the NET generation, which was born in the last decades of the last century, and generation X and their predecessors, where technologies can be difficult to assimilate and use, unlike those where part of their training had a relationship with some ICT element, generally a computer.

In this sense, we can talk about a generation gap and therefore a digital gap in relation to teachers with respect to their students, as you mentioned, it may be due to the fact that the new generations use ICT more, either because they learnt it in their school years or as a result of the computer culture that has been formed in recent years.

People in this technological environment faced drastic changes in this pandemic, one of them was: being forced to acquire digital teaching competences in an immediate way, being a requirement to use digital educational platforms, such as:

–   Google Suite for Education,
–   Microsoft Teams
–   Moodle

In order to teach their classes, in addition to their tutoring sessions in the different educational programmes to which they belong.

ICT in education is not only the incorporation of some tools or platforms to the educational process, it is important to design learning objects in them in such a way that they support the construction of meaningful learning, without this representing a burden for the teacher, on the contrary, it should facilitate their activities including planning and evaluation, While it is true that one of the most widespread uses of ICT use are online or virtual classes, they can be used in tutoring sessions (as mentioned at the beginning), academic advising, among others.

Academic tutoring, as a process of accompaniment, implies that the tutor must have a stipulated profile, but also, with the arrival of the pandemic, must possess digital competences that support him/her in carrying out his/her work, using the formats established in each institution.

At the Instituto Tecnológico de Campeche, the established format for recording the Tutorial Activity is the Student Tutorial Card. This was given to each student at the beginning of their degree course during the induction talk (Figure 1.1), where they were asked to write down their details, the details of the corresponding tutor and the details of the person in charge of the departmental coordination of tutorials to which their degree course belonged, see Table 1.1.

Table 1.1 Departments and Careers of IT Campeche

Career	Academic Department
Industrial Engineering	Industrial Engineering
Management Engineering	Economic-Administrative Sciences
Business Management Engineering	
Architecture	Earth Sciences
Civil Engineering	
Computer Systems Engineering	Systems and Computing
Information and Communication Technology Engineering	
Mechanical Engineering	Metal - Mechanics
Chemical Engineering	Chemical and Biological Sciences
Environmental Engineering	

Source: Own Elaboration

Figure 1.1 Tutoring Card

Source: Carnet de Tutorías del Instituto Tecnológico de Campeche

In this card all the activities attended by the students were recorded. After completing a certain number of activities, a complementary credit is granted, as indicated in the Tutoring Guidelines (TecNM, 2015).

With the arrival of the Pandemic, the Carnet was not delivered to students who entered in 2020 and 2021, which is why it was designed and implemented through a digital platform, in this case: Microsoft Teams.

It is important to mention that before the pandemic the platform used by the Instituto Tecnológico de Campeche was the Google Suite, i.e. Classroom, where some teachers, in order to have contact with their assigned students, created groups on these platforms (Figure 1.2), which facilitated the tutorial work between teachers and students.

Figure 1.2 Groups in Classroom Platform
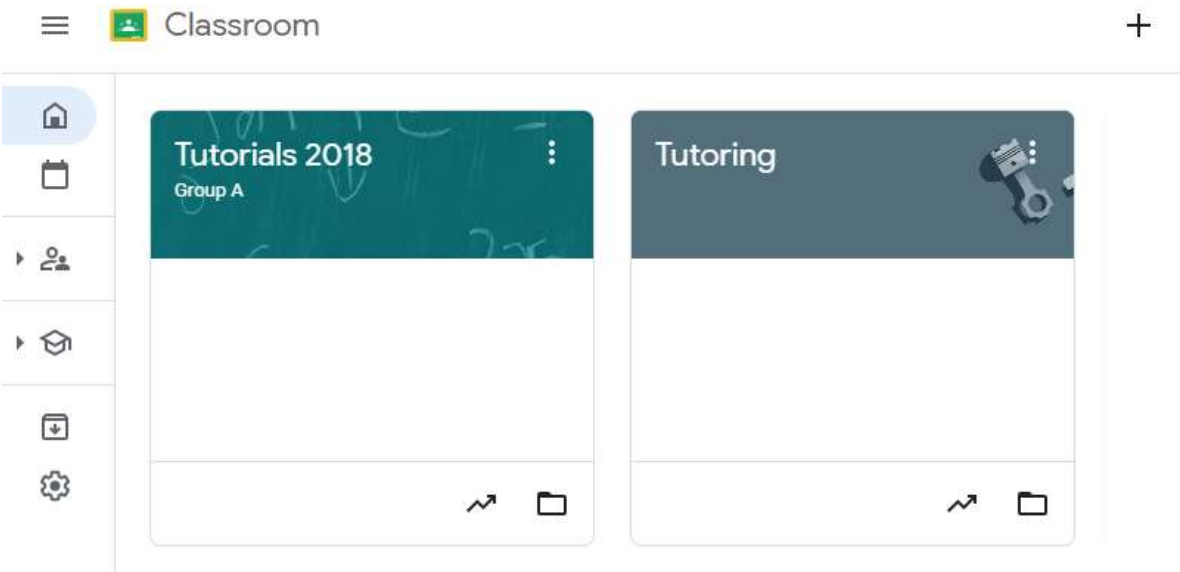
Source: Own Elaboration in Classroom Platform

The activities were put on the platform, (Figure 1.3) the student did them and they were registered in the Student Card (Figure 1.4).

Figure 1.3 Activities in Classroom Platform

I. Individual Activities with Tutor

Act. 5. Tutor Evaluation, EV. TUTORS ANNEX ...		Deadline: Dec 20, 2019, 11:5...
Act. 4. Carry out the Teaching Evaluation.		Deadline: Nov 25, 2019, 9:59 ...
Act. 3 Write down the partial grades on the ...		Deadline: Nov 21, 2019, 11:5...
Act. 2.- Update general data in the SII.	1	Deadline: Nov 21, 2019, 11:5...
Act. 1.-Depressive Syndrome, Self-Este...	1	Deadline: Nov 20, 2019, 11:5...
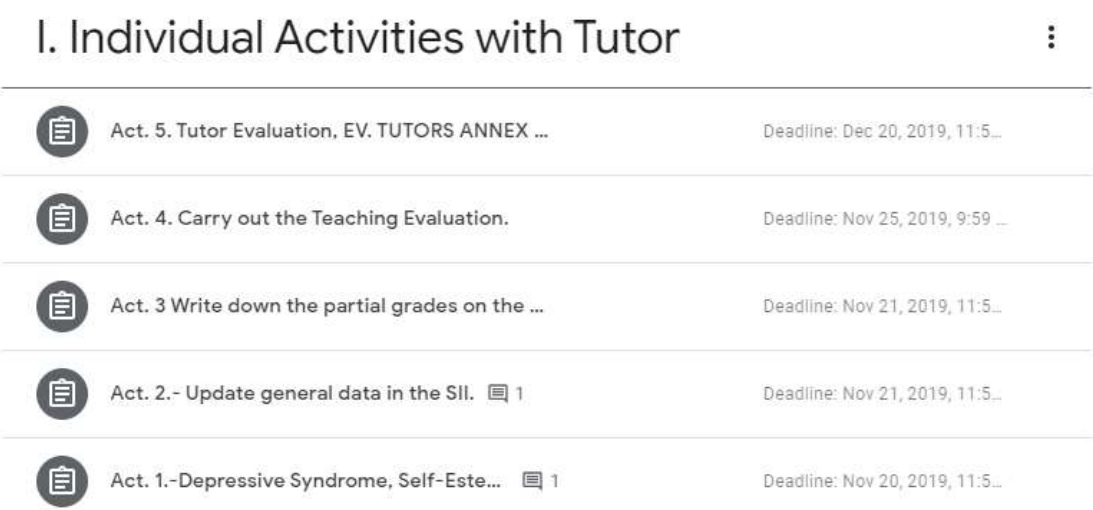
Source: Own elaboration in Classroom Platform

Figure 1.4 Registro en Actividades de Carnet

Source: Instituto Tecnológico de Campeche Tutoring Card

In the second semester of 2020, the Technological Institute changes its platform, being Microsoft Teams, and as an implementation strategy a massive training on the use of the platform was given.

2. Development

It is important to remember that any implementation process in virtual environments must take into consideration the stakeholders or people interested in this process, so that they can provide valuable information in the design or development of the process so that its adaptation is simple and very similar to that normally used in a face-to-face environment, the actors involved for this are: (figure 1.5)

- Tutor Person
- Student body
- Tutoring Coordination.

Figure 1.5 Stakeholders

Source: Own Elaboration

After determining the interested people, the next step was to generate the tutoring groups in the Teams Platform (Figure 1.6), as it had been done in the Classroom Platform, an important point was the generation of a group where all the students of the academic department Table.1.1

Figure 1.6 Tutoring Groups on the Teams Platform
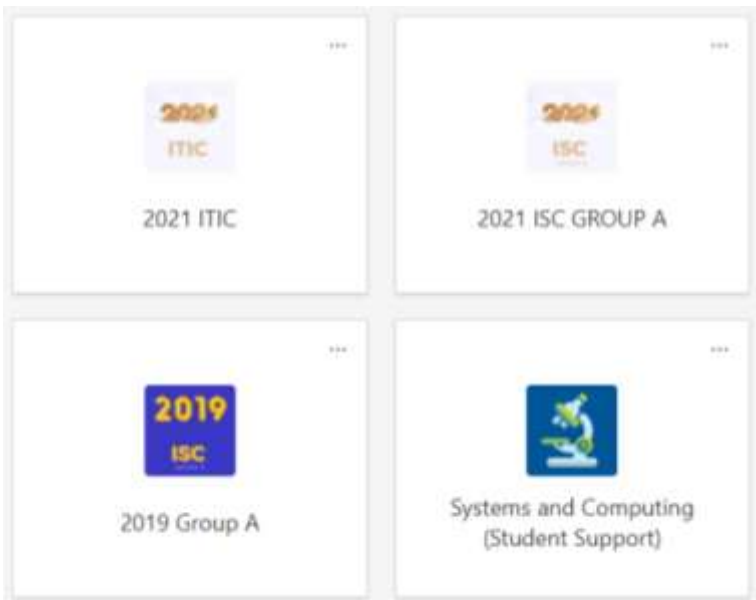
Source: Own elaboration in Microsoft Teams Platform.

The support group (of all students) is managed by the departmental coordinator and serves for information purposes of departmental and institutional activities related to tutoring as part of the tutoring intervention.

An important point to consider for the realisation of the Virtual Tutoring Card is the fact that all the people interested in the Card could visualise it, so that they could have an evidence of the realisation of their activities, taking into account that these activities can be: being these activities:

- Individual
- Group activities
- Departmental
- Institutional

The first two are carried out by teachers and students, the third by the departmental coordination and the last by the Institutional Coordination, although the register can be kept by either of the two. The way to register in the physical card is to write down and sign the activity carried out by the person in charge of that activity (Figure 1.4). It is worth mentioning that a physical record is also kept for each activity that is carried out in order to have statistical data for it. In this way, if the student does not have his or her card, he or she can come to the office another day to have the activity recorded (Figure 1.7).

Figure 1.7 Register of Attendance at Institutional-Departmental Activities

Source: Instituto Tecnológico de Campeche Attendance Record Form

Another important aspect considered when implementing the virtual card proposal was that both the tutor and students could have access to it and be able to print it whenever they needed to.

In Microsoft Teams, as in Classroom, Tasks can be scheduled (Figure 1.8), but because everything was digital and the physical card was not available, tasks could not be recorded in it.

Figure 1.8 Activities as Tasks in the Microsoft Teams Platform
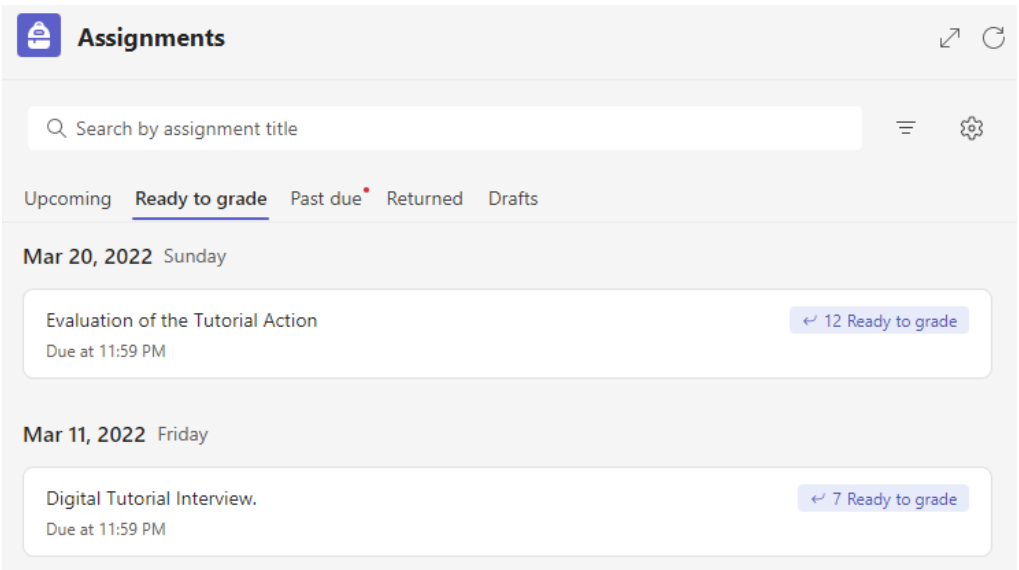
Source: Own elaboration in Microsoft Teams Platform

Therefore, it was necessary to implement within this platform, the Virtual Card, for this it was thought to do it through the Microsoft Teams Notepad, which is linked to the Groups, after several attempts it was possible to have the prototype that is presented in this work (Figure 1.9).

Figure 1.9 Class Notepad of a Tutoring group in Microsoft Teams
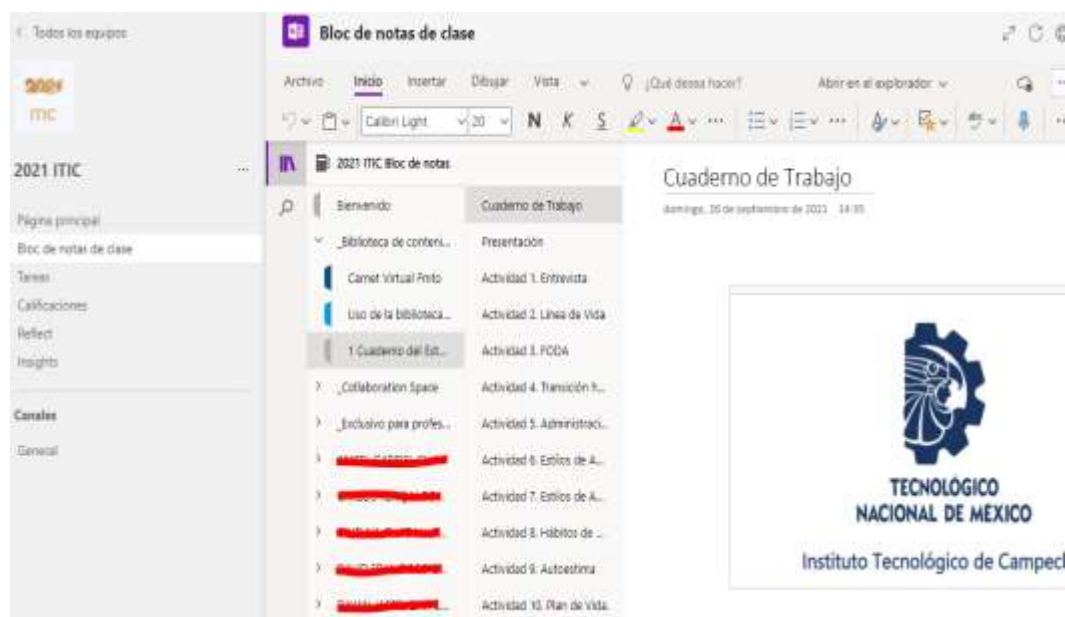
Source: Own elaboration in Microsoft Teams Platform

Each team generated in Microsoft Teams has its own linked Notepad from the Microsoft One Note Linked platform, where text, images, handwritten notes, among other digital objects can be stored (Microsoft Teams for Education, 2022).

It is important to clarify that although each group in the Microsoft Teams platform has a linked Notepad, this is not generated automatically, but only when the teacher of the group requests it from the platform as will be explained below.

Each Class Notepad has:

−   Student Notepad,
−   Content Library
−   Collaboration Space.

The Student Notepad is a private space where only the student and the tutor can view their content, but a student cannot view the content of their classmates, generating privacy of the activities they carry out. (Microsoft Teams for Education, 2022).

The Content Library is the section where the teacher can put content but for the students it is considered a reading space in this way the tutor shares materials that are used by the students (Microsoft Teams for Education, 2022).

The Collaboration Space as the name suggests is a space for both tutors and mentees to share information (Microsoft Teams for Education, 2022).

One of the easiest ways to create the Notepad was to create it from One Notes and from there generate the Notepad in such a way that it is not linked to any Group, so that when the Class Notepad is created it can be taken from the existing one (Figure 1.10).

Although there may be other ways of generating a Notepad, it is important to consider that a template was created by the Institutional Coordination of Tutoring so that it could be shared with all tutors and from there each tutor could generate his or her Virtual Card in his or her tutor groups.

In other words, it is only necessary to share the Carnet once before it can be used again, so this is the process explained in this process.

Figure 1.10 Creating a Notepad in Microsoft Teams
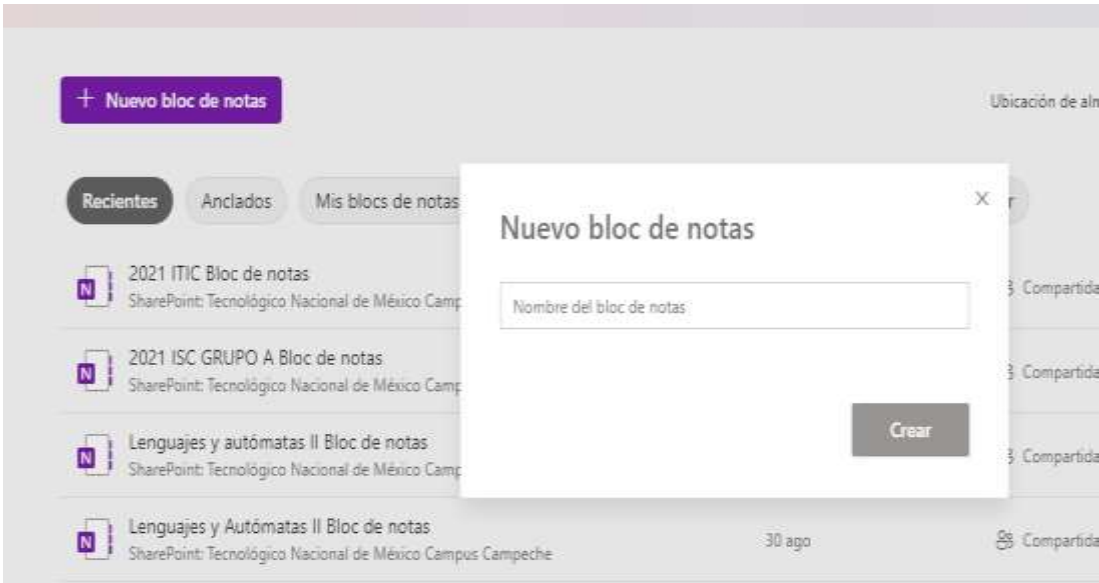
Source: Own elaboration in Microsoft Teams Platform

When the Notepad is created, the elements that make up the Virtual Card are placed on each page, just as they are in the Physical Card, generating the cover page, the section for the Register of Tutoring Activities and the Register of Group Tutorials (Figure 1.11).

When generating the class notepads, it was decided that this would be done from the existing notepad, selecting the tutoring card; it is important to note that at this point only the teacher's notepad is generated. It is important to note that at this stage only the teacher's notebook is generated. With this measure, each group that is created will create its own notebook in this way, so that everyone will be able to have their own Virtual Card.

Figure 1.11 Virtual Card sections
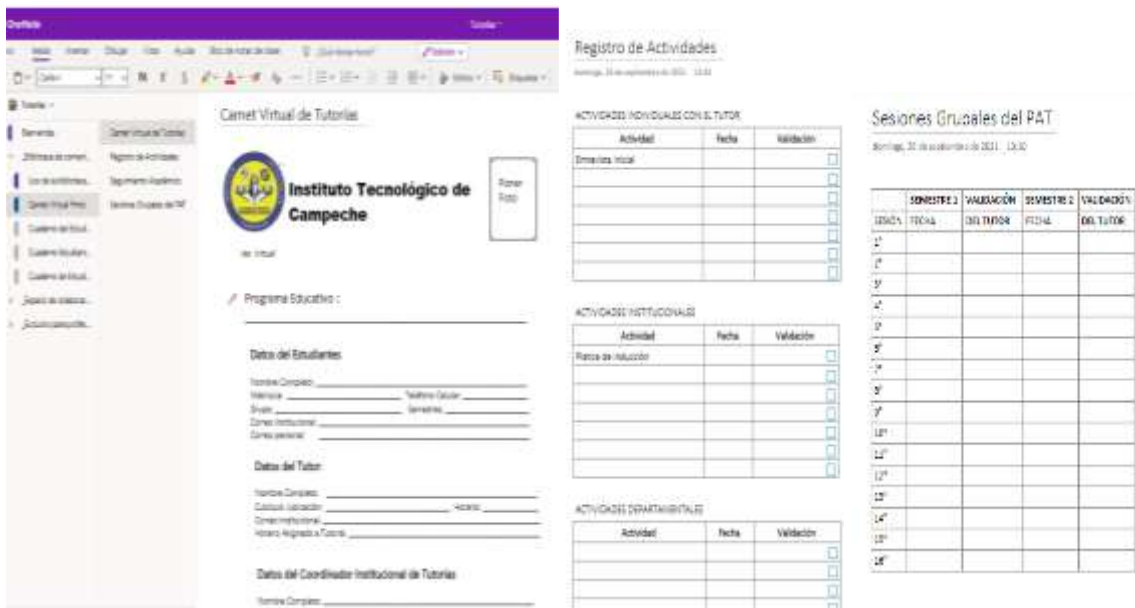
Source: Own elaboration in Microsoft Teams Platform

Due to the privacy generated by the student's notepad, it is possible to establish the activities that the student will carry out in the same notepad, preferably in a different section of the Virtual Card, the result of these activities can be seen in Figure 1.12 as the Student Workbook.

Since the activities that are written in the notebook are saved, it is not necessary to recreate them in the new notebooks that are generated, only the last updated one should be used to maintain the changes made.

Figure 1.12 Activities in the Student Workbook

Source: Own elaboration in Microsoft Teams Platform

Once both elements were generated, we proceeded to distribute them to each student. To do this, it is necessary to open the Notepad in the browser, so that it appears in the Class Notepad menu, (Figure 1.13) this will allow us to make a type of distribution.

Figure 1.13 Class Notepad Menu
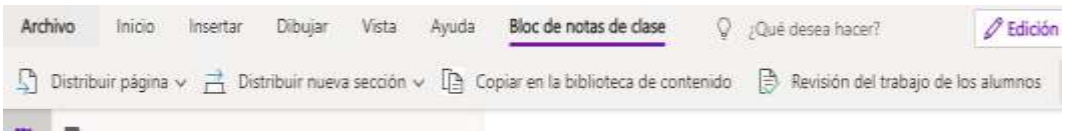
Source Microsoft Teams Platform - Notepad section

The distributions allowed in Notepad are:

− Distribute page, the highlighted page is distributed.
− Distribute new section, a section is appended.
− Both are distributed in the student's notepad.

In this way, only the pages that are necessary will be distributed according to the student's activities indicated in the Tutor's Tutorial Action Plan.

3. Outcome

The result was to have a Virtual Card and Workbooks according to the needs of the group, the semester and the educational programme in the different groups where it was implemented, in this case it started with the department of Systems and Computers, currently it has been implemented in other academic departments such as Economic and Administrative Sciences, Earth Sciences, Metal Mechanical Engineering, missing the departments of Industrial Engineering and Chemical and Biochemical Engineering due to the peculiar nature of how tutoring is done in those departments.

The activities carried out by the students could be recorded in the Virtual Card, as we can see in Figure 1.14; this record is made by the teacher using the submenu of revision of the students' work, in order to facilitate the record.

Figure 1.14 Virtual Student Card in the Class Notebook

Source: Own elaboration in Microsoft Teams Platform

One of the advantages of the Notepad implemented in the Microsoft Teams platform is that the learner can print out a physical or Portable Document Format (PDF) file, so they can have evidence of their activities (Figure 1.15).

Figure 1.15 Notepad print out

Source: Own elaboration in Microsoft Teams Platform

Another advantage of the Virtual Card is that in the Activities area the rows can be increased according to the work done by the student, which improves the Physical Card because there were only a limited number of rows for the registration of activities, in this case it was necessary to use another Card to continue registering more activities.

4. Acknowledgements

5. Conclusions

Although it is true that the task of implementing the Virtual Carnet may seem simple, there is an arduous task in carrying out the different tests to which this task was subjected, learning from the mistakes made, in order to improve the design, to obtain the result that is presented today,

It is important to mention that the Virtual Card was only applied to the Systems and Computing area as a pilot test, it is intended to replicate it in the other departments so that tutors, after training, can use the Virtual Card so that students and tutors can have evidence in the same virtual group where tutoring is offered, in addition to the fact that it can increase the activities or dynamics that the student can carry out within the Tutorial Action Plan designed by the tutor.

Once implemented in all departments, its effectiveness and efficiency should be evaluated in order to make continuous improvements, giving rise to new research related to tutorial work and generating new knowledge that can be shared with other institutions.

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Chapter 5 Student perception of Virtual Tutoring in the Industrial Engineering Educational Program in Poza Rica, Veracruz during the COVID-19 pandemic

Capítulo 5 Percepción del estudiante sobre la Tutoría Virtual en el Programa Educativo de Ingeniería Industrial en Poza Rica, Veracruz durante la pandemia COVID-19

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Abstract

Academic tutoring is a personalized accompaniment process carried out by the academic tutor, who provides guidance to the tutor in the personal, social, academic and professional areas. During the COVID-19 pandemic, face-to-face tutoring was suspended and there was a need to maintain the tutor-tutor link. In response, the Universidad Veracruzana implemented a virtual tutorial through its different educational platforms. This article seeks to analyze the importance of virtual university tutoring from the perspective of the students of the Faculty of Mechanical Engineering, in the Industrial Engineering program of the Universidad Veracruzana, Poza Rica-Tuxpan region.

Tutoring, pandemic, Academic tutor, Virtual tutoring

Resumen

La tutoría académica es un proceso de acompañamiento personalizado que realiza el tutor académico, quien brinda orientación al estudiante en el ámbito personal, social, académico y profesional. Durante la pandemia de COVID-19 se suspendieron las tutorías presenciales y fue necesario mantener el vínculo tutor-tutorado. En respuesta, la Universidad Veracruzana implementó una tutoría virtual a través de sus diferentes plataformas educativas. Este artículo busca analizar la importancia de la tutoría universitaria virtual desde la perspectiva de los estudiantes de la Facultad de Ingeniería Mecánica, de la carrera de Ingeniería Industrial de la Universidad Veracruzana, región Poza Rica-Tuxpan.

Tutoría, Pandemia, Tutor académico, Tutoría virtual

1. Introduction

The academic tutoring is one of the 4 substantial activities of the academic that belongs to the Universidad Veracruzana, of presential form the academic tutor has the obligation to carry out at least 3 sessions, which in its totality in the educational Program of Industrial Engineering of the Faculty of Mechanical and Electrical Engineering of the zone Poza Rica Tuxpan was carried out of presential form, However, due to the contingency caused by COVID-19 in March 2020, the closure of non-essential activities was decreed, education being one of them, which led to the suspension of face-to-face activities and thus the beginning of virtuality to meet current commitments, therefore academic tutoring was one of them. Consequently, both students and academics had to adapt to the new modalities and learn as much as possible how to use digital platforms and establish communication strategies to carry out the tutorial activity. The present work aims to know the perception of students about the tutoring received in the period from March 2020 to July 2022, time in which the closure of face-to-face activities due to COVID-19 took place.

2. Development

The Industrial Engineering educational programme started activities in the Faculty of Mechanical and Electrical Engineering of the Universidad Veracruzana in the Poza Rica-Tuxpan area, in August 2011, with an offer of 35 students (Apud. Cruz-Orduña, Juárez Morales, Martínez García, & Ramos González, 2018), due to the demand that this educational programme has had, they currently offer 50 places. The programme operates under the flexible integral educational model, where the student is expected to develop a comprehensive education, which allows him/her to be an ethical professional, and competent to solve the needs of society (Student Portal. Universidad Veracruzana, 2022).

It is comprehensive because in addition to promoting the knowledge specific to the degree, it promotes intellectual, social and human training. It is flexible because students can finish their degree in the time that suits them best without exceeding the stipulations of the current regulations, which means that they can:

− Select the educational experiences (EE) from the second period onwards, taking into account the number of credits based on the current legislation of their educational programme and the path they wish to take (minimum, standard and maximum) to finish their educational programme (Idem).

− To study educational experiences in different faculties, institutes or departments, as well as in different learning modalities: face-to-face, blended, virtual, blended, self-learning and demonstration of competences (Idem) (Idem).

− This model gives the student a margin of autonomy in terms of decision-making in relation to his or her credit load, therefore, tutorial activity is an important support tool for the achievement of these goals (Idem).

− Therefore, the figure of the academic tutor in this process is of utmost importance to guide the tutored (Idem).

3. Academic Tutoring

According to the Regulations of the Institutional Tutoring System (RSIT), (2009), tutoring at the University of Veracruz has its origin in the 1999 school year, with the change of model from rigid to flexible in its study plans, giving rise to the Institutional Tutoring System (SIT) which aims to support students to solve academic problems, promote their autonomy and comprehensive training, and help improve their academic performance, from individual attention or in small groups. Based on article 4 of the aforementioned document, the SIT is made up of an operational coordination and the Tutorial System of each educational programme, which in turn is formed, as mentioned in article 5, by:

− A coordinator who is proposed by the director of the entity and appointed by the Technical Council.
− The academics who perform the function of Tutor.
− The academics who carry out functions as Tutor Lecturers.
− Monitors. Students who support the academic tutoring functions.
− Tutorados, who are the students who receive the tutoring.

The University of Veracruz, as decreed by the RSIT in its article 7, offers 2 types of tutoring:

1. **Academic Tutoring.** which refers to the monitoring carried out by an academic, called Academic Tutor, of the academic trajectory of one or more Tutorees during their permanence in the corresponding educational programme.

2. **Tutorial teaching:** this is the personalised attention given by an academic, called a Tutor Teacher, aimed at supporting the Tutors who require it in problems related to the thematic contents of the educational experiences or who are interested in a broader disciplinary training, through the development of Comprehensive Training Support Programmes (PAFI).

As we can see, the tutor is responsible for monitoring the student, as well as guiding, supporting and informing him/her in everything related to academic matters during his/her school career in order to make decisions in accordance with his/her expectations, abilities and interests in the educational programme.

Article 21 section II of the RSIT establishes that one of the tutor's obligations is to carry out 3 academic tutoring sessions agreed with the students during a school period in accordance with the dates established by the Operational Coordination of the Institutional Tutoring System.

The modalities of attention in which the tutorial activity is carried out can be face-to-face or non-face.

− Face-to-face: this is characterised by the fact that the relationship between the tutor and the tutored person is face-to-face, in a predetermined physical space and can be individual or in groups, which must be grouped according to common profiles.

− Non-face-to-face: characterised by the fact that the relationship between tutor and mentee is mediated by physical distance and is predominantly asynchronous.

– However, before the COVID-19 pandemic, based on the tutoring reports registered in the SIT of the Industrial Engineering educational programme, tutors reported that the modality in which they attended to their students was face-to-face.

– At the end of December 2019, a viral disease very similar to pneumonia caused by the most common bacteria and viruses began in the city of Wuhan, China. The emergence of this outbreak resulted in the Chinese health authority reporting the appearance of this disease to the World Health Organisation (WHO) on 31 December. Tests on patients suffering from the disease identified the causative agent as a new coronavirus. The disease came to international prominence on 13 January 2020 when the first case outside China was reported in Thailand; despite efforts, the number of people infected increased rapidly and the first deaths were reported, so that on 30 January the WHO declared the disease a public emergency of international concern. A little over a month after the outbreak began, the disease was given the name COVID-19 and the causative agent was named SARS-CoV-2 by the International Taxonomy Committee. As time went by, the disease spread worldwide, accelerating the number of infected and deaths, until the WHO characterised the disease as a pandemic on 11 March 2020 (Mojica-Crespo & Mojica-Crespo & Mojica-Crespo, 2005). (Mojica-Crespo & Morales-Crespo, 2020).

– In view of the COVID-19 emergency, between 23 March and 1 April, the Federal Health Authority determined the suspension of non-essential activities, including educational activities, establishing a traffic light (red, orange, yellow and green) by region, stipulating that educational activities could only be resumed in person when the traffic light was green. These measures were taken up by the Ministry of Public Education, so that on 16 March it published the Covid-19 Action Guidelines for Higher Education, which suggest the closure of activities from 20 March 2020. All universities in the country agreed to suspend activities, given that the announced period coincided with the Easter holidays (Apud. Malo-Alvarez, Maldonado-Maldonado, Gacel Ávila, & Marmolejo, 2020 and Schmelkes, 2020).

– On 26 April, the rectors of the Higher Education Institutions belonging to the National Association of Universities and Higher Education Institutions (ANUIES) met with the Secretary of Public Education and the Undersecretary of Higher Education and agreed to move from face-to-face to remote models, open and distance education in order not to interrupt the educational service (Loc. cit.).

– The impact that HEIs suffered from the COVID-19 health emergency was very diverse, however, most of them coincide in the following:

– Educational Institutions had to adjust the dates for the duration and closure of the current semester and the start of the next one.

– Difficulty of access to technology and the internet on the part of the students, some due to connectivity problems in their communities, others because of the economic factor due to the decrease in productive and commercial activities, which resulted in the loss of jobs and sources of income.

– Lack of experience in the use of technologies by teachers and students, as well as lack of teacher training for distance education.

– Loss of students due to dropout as a consequence of economic, technological, and pedagogical factors.

– The quality of education received by students due to unfavourable learning conditions, as many students did not have adequate space to receive distance learning classes, because they had sick relatives, several family members were connected, affectation due to confinement, and so on.

- However, distance education also has certain advantages such as using multiple human and other resources to favour learning experiences; having personalities from other universities; collaboration and exchange with other HEIs led to advances and transformations in the contents and structure of this educational level (Apud. Malo-Alvarez, Maldonado-Maldonado, Gacel Ávila, & Marmolejo, 2020 and Schmelkes, 2020).

- With regard to the Universidad Veracruzana, like other HEIs, its substantial activities (teaching, research, management and tutoring) were affected by the COVID-19 pandemic, in this sense the institution proposed in its contingency plan (Comunicados UV, 2022), several actions based on the general guidelines for the safe return to face-to-face university activities, such as:

- Arrangements for academic work. School period September 2020 February 2021, where the academies by areas of knowledge play a preponderant role in the planning and operation of the educational programme.

- Training for teachers in the use of educational platforms, and for new students through the "Know your university" programme.

- Issuance of communiqués for the implementation of activities in accordance with the epidemiological traffic light from 2020 to date.

- Monitoring of academic activities derived from the COVID-19 General Provisions.

Currently the Faculty of Engineering and Chemical Sciences and other entities of the Universidad Veracruzana have resumed face-to-face activities at 100% and the students of the 2020 and 2021 generation have already had their first face-to-face tutoring.

4. Methodology

This is a descriptive cross-sectional research that seeks to obtain the student's perception of distance or virtual tutoring through the application of a questionnaire formulated in Microsoft forms to be answered by the students of the 2019, 2020 and 2021 generations to collect information about the different digital platforms they used, the number of sessions they had, the quality of the tutoring they received and the challenges they faced.

5. Results

Currently the industrial engineering programme has180 students from the generations ranging from 2017 to 2022, served by 18 tutors. A brief survey was conducted with the 2019, 2020, and 2021 generations. The 2017 and 2018 generations were not taken into account due to the fact that the first 2 generations have a small number of students and little contact with them because they are only studying the educational experience of receptional experience or are doing professional residencies; and the 2022 generation, being new entrants, has not had the experience of tutoring in the period of the pandemic with teachers from the faculty. The total population comprising these 3 generations is 118 students, which corresponds to 74% participation. In table 1 we can see the total number of students comprising the generation, as well as the percentage of participation of each one of them.

Table 1 Student participation by generation

Generation	No de students	No of students Participants	% of Participation
2019	39	16	41%
2020	37	31	83.78%
2021	42	40	95%
Total	118	87	74%

Source of Consultation: Own elaboration. Information provided by the Academic Secretary

Of the 87 participants, the distribution of participation with respect to the number of students who responded to the survey is shown in table 2, where we can identify that the generation with the highest response was 2021.

Table 2 Participation of students by generation

Generation	No de students	No of students Participants	% of Participation
2019	39	16	18%
2020	37	31	36%
2021	42	40	46%
Total	118	87	100%

Source: Own Elaboration

|The number of times the mentees had contact with the tutors during the period March 2020-July 2022 were as follows: 35 tutorates corresponding to 40.2% answered that they were 3 or more times in contact with their tutor; 24 of them representing 27.6 % mentioned that they were contacted 2 and 1 time and 4 constituting 4.6% that they had no contact with him/her.(table 3). As we can notice 95.4% of the students at least once had contact with their tutor despite the difficulty of access to technology and internet mentioned by Malo-Alvarez, Maldonado-Maldonado, Gacel Avila, & Marmolejo, (2020) and Schmelkes, (2020).

Table 3 Number of times the student had contact with their tutor

Technological environment	No of students	% of Participation
Celular	49	56.3%
Culular/laptop	28	32.2%
Laptop	8	9.2%
Other	2	2.3%
	87	100%

Source: Own Elaboration

The technological means they most frequently used to be in contact with their tutor were 49 (56.3%) used the mobile phone, 28 (32.2%) a combination of mobile phone and laptop, 8 (9.2%) used the laptop as a means of communication and 2 (2.30 %) mentioned that they used another means. It is worth noting that the devices were their own, although it might have been thought that more than a few would have rented a computer (Table 4).

Table 4 Technological means most frequently used to be in contact with their tutor

No of platforms used	No of students	% of Participation
1	39	45%
2	34	39%
3	10	11.5%
4	3	3.5%
5	1	1%

Source: Own Elaboration

Among the most used platforms to contact the tutor, 45% used one platform, 39% used 2 platforms, 11.5% used 3 platforms, 3.5% combined 4 platforms and only 1% used 5 platforms (Table 5). Contrasting with the factor of lack of experience in the management of technologies, but confirming that one of the advantages of distance education is to favour learning experiences through the use of multiple resources (Malo-Alvarez, Maldonado-Maldonado, Gacel Avila, & Marmolejo, 2020) (Schmelkes, 2020) (Schmelkes, 2020).

Table 5 Number of platforms used to contact the academic tutor during the COVID-19 pandemic

Tutorías impartidas	No of students	% of Participation
3 o more	35	40.2%
2	24	27.6%
1	24	27.6%
None	4	4.6
	87	100%

Source: Own Elaboration

Of the 34 students who used 2 technological resources, 18 of them used WhatsApp and Zoom (Table 7), those who used 3 technological resources 4 out of 10 preferred WhatsApp, email and Microsoft Teams (Table 8), 3 students used 4 platforms (Whatsapp; Email; Zoom platform; Eminus; or Teams); only one student used all 5 platforms. It is not surprising that WhatsApp is the most used platform given that the technological medium they used the most was mobile phones.

Table 6 Platform most used by the mentees

A Platform	Tutors
Zoom Platform	9
Whatsapp	26
E-mail	1
Eminus	1
Teams	2
Total	39

Source: Own Elaboration

Table 7 The 2 Platforms used by mentees

Two Platforms	Tutors
Plataforma Zoom; Eminus	1
Plataforma Zoom;Teams	2
WhatsApp, Plataforma zoom	18
WhatsApp; Eminus	4
WhatsApp; Teams	4
WhatsApp; Correo electrónico	5
Total	34

Source: Own Elaboration

Table 8 Top 3 platforms used by students to contact their tutor

Three Platforms	Tutors
Whatsapp;Email;Teams;	4
Whatsapp;Platform zoom;Eminus;	2
Whatsapp;Email;Platform zoom;	2
Whatsapp;Platform zoom;Teams;	2
Total	10

Source: Own Elaboration

Among the benefits of receiving tutoring during the pandemic, 70% of the students reflected that it brought them benefits because they felt accompanied, guided and somehow comforted given the situation they were living through; in contrast, 21% stated that they did not benefit from virtual tutoring in the pandemic, since in the sessions they were left with doubts, talked about the same topics or were only informed about the educational experiences they would be taking, when perhaps they required other information; finally, 9% did not find it important to receive it (Table 9).

Table 9 Benefits of receiving tutoring during the COVID-19 pandemic

Challenge	No of students	% of Participation
Adaptation to virtual classes.	35	40%
internet connection problems	22	25%
To be able to communicate, both with their tutor and with their teachers.	13	15%
% were unaware of the flow of school procedures and did not receive sufficient clarification,	10	12%
Did not know how to register AFEL educational experiences, so their registration was complicated.	7	8%

Source: Own Elaboration

During the pandemic, the students were experiencing different challenges, each in their own particular scenarios: 40% stated that the most complicated thing they experienced was adapting to virtual classes, given that they always had face-to-face classes and although it is true that they sometimes used a support platform, it is also true that virtual work was practically non-existent. 25% said that they faced internet connection problems during the pandemic, a fact that was experienced by many of the population because we were not prepared with infrastructure and in addition we had to face hurricane "Grease", which kept the city practically without water, electricity and internet services for approximately three weeks or more in some areas. 15% of the student population stated that they faced the challenge of being able to communicate, both with their tutor and with their teachers; 12% did not know the flow of school procedures and did not have enough clarification about it; finally, 8% did not know how to register AFEL educational experiences, so their registration was complicated (table 10).

Table 10 Major challenge students faced during the pandemic

Benefited from mentoring	No of students	% of Participation
Yes	61	70%
No	18	21%
Not important	8	9%
Total	87	100%

Source: Own Elaboration

53% of the respondents answered that the tutoring received during the pandemic helped them to face their challenge because they received support from their tutor, clarifying their doubts about the different academic processes, this was very important especially for the 2020 and 2021 generations, who did not have the advantage of knowing closely the processes that are carried out in the faculty of engineering and chemical sciences.

Consequently, in the question of how would you rate your tutor, given that 53 % responded that they received support and guidance from the academic it was expected that at least that percentage would be met by adding the ratings of good, very good and fair, and this was the case.

Table 11 shows that the highest percentage of tutors received a rating of good to excellent, with a total of 80% between them. Despite the fact that distance tutoring was well evaluated, 70% of the young people prefer face-to-face tutoring because they mention that they have better communication, face-to-face interaction leads to more trust, it is easier to contact the tutor.

Some advantages mentioned by the other 30% about virtual tutoring is that time can be managed by giving it at any time and at any moment, because contact can be made from any place where there is connectivity.

Table 11 Rating of tutoring received

Calification	No of students	% of Participation
Excellent		25%
Very Good		26%
Good		29%
Fair		15%
You did not receive advice		5%

Source: Own Elaboration

6. Conclusions

As we can see, several of the problems faced by our students during the pandemic coincide with those reviewed in the literature, such as connectivity problems, adaptation to the new educational modality and learning to use the educational platforms they had to use to develop their classes during the two years of the pandemic. However, it is also clear that there were some advantages such as the development of new skills in communication technologies, as mentioned by Malo-Alvarez, Maldonado-Maldonado, Gacel Avila, & Marmolejo, (2020) in their article "Impacto del COVID-19 en la educación superior en México" (Impact of COVID-19 on higher education in Mexico). After the initial confusion, many HEIs reacted positively to contribute to the reduction of the risks of contagion and most of them adopted measures to resume their functions and fulfil their commitments, and it was also during this period that the connectivity of digital technologies burst definitively into the teaching and learning processes beyond the traditional media.

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Chapter 6 The perception of the students about the Tutoring in virtual modality

Capítulo 6 La percepción de los estudiantes acerca de la Tutoría en modalidad virtual

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Abstract

Derived from the health contingency caused by covid-19, academic tutoring, like other teaching functions, which were traditionally carried out in person, were suddenly forced to be carried out in a virtual or online modality. Since then there have been many opinions from both teachers and students about the effectiveness of this type of care. It should be said that some voices have been in favor and others the opposite. This paper presents the results of an investigative exercise, which aimed to show, from the point of view of the tutors of the Faculty of Pedagogy of the Universidad Veracruzana (UV), Campus Poza Rica, how they perceived this process, as well as which These would be your recommendations in the event of a similar situation recurring. 120 students from different academic tutors and different semesters participated in the study, the approach was descriptive, and among the results obtained, the fact that students recommend maintaining closer communication with their respective tutors, using various technological tools such as: WhatsApp, Facebook, Instagram, Telegram, Email, the EMINUS Institutional Platform, among others.

Academic tutoring, Virtual modality, Perception

Resumen

Derivado de la contingencia sanitaria provocada por el covid-19, las tutorías académicas, al igual que otras funciones docentes, que tradicionalmente se realizaban de manera presencial, se vieron de pronto obligadas a llevarse a cabo en una modalidad virtual o en línea. Desde entonces han sido muchas las opiniones, tanto de profesores como de alumnos, sobre la eficacia de este tipo de atención. Hay que decir que algunas voces han sido a favor y otras en contra. En este trabajo se presentan los resultados de un ejercicio de investigación, cuyo objetivo fue mostrar, desde el punto de vista de los tutores de la Facultad de Pedagogía de la Universidad Veracruzana (UV), Campus Poza Rica, cómo percibían este proceso, así como cuáles serían sus recomendaciones en caso de que se repitiera una situación similar. En el estudio participaron 120 estudiantes de diferentes tutores académicos y diferentes semestres, el enfoque fue descriptivo, y entre los resultados obtenidos destaca el hecho de que los estudiantes recomiendan mantener una comunicación más cercana con sus respectivos tutores, utilizando diversas herramientas tecnológicas como: WhatsApp, Facebook, Instagram, Telegram, Correo electrónico, la Plataforma Institucional EMINUS, entre otras.

Tutoría académica, Modalidad virtual, Percepción

1. Introduction

Currently, education at all educational levels has gradually returned to the classroom after a period of just over two years, due to the presence of the covid-19 pandemic, and in order to provide care at important times to students at the higher education level, one of the most important services that had to migrate from the classroom to the distance mode was academic tutoring (Díaz, 2021).

Overnight, educational authorities in our country took the difficult decision to close educational centres in order to continue academic activities from home. This unprecedented situation caused great uncertainty among university students as they went from a traditional learning environment to a virtual one. At the same time, it became clear that there was a need to find new ways of providing orientation, guidance and supervision to learners, so that they could resolve the difficulties that they encountered on a daily basis, and one of these ways was virtual tutoring. As a result of the pandemic, the ways in which academic tutors attended to their students changed, using technological tools such as videoconferencing systems, including Zoom, Microsoft Teams, Meet, Jitsi, etc.; instant messaging applications such as Whatsapp, Instagram, Telegram, as well as the classic email.

2. Development

Academic tutoring according to the National Association of Universities and Higher Education Institutions (ANUIES) (2000), is defined as:

A service of accompaniment and support provided individually by the teacher to the student with the purpose of helping him/her to face his/her problems and to adapt to the university environment, to fulfil his/her academic objectives and to face the commitments of the future professional practice.

In this sense, all Higher Education Institutions (HEIs) affiliated to ANUIES have a tutoring programme (De la Cruz, 2017). The Universidad Veracruzana is no exception and since 1999 it has instituted the Institutional Tutoring System, which provides its students with the possibility of a tutor to guide their academic path during their time at the university.

According to Miguel (cited in Vázquez, n.d. and Cabero and Barroso, 2012), virtual tutoring can be summarised as the role assumed by teachers in virtual environments to advise, accompany, guide, orient, lead and evaluate the learning development of their students.

To say it seems simple, the challenge was how to provide attention to the students under this modality.

3. Literature review

In recent decades, tutoring has become an issue of great relevance, as it serves as a support for the accompaniment of the academic trajectory of university students. According to Narro and Martiniano, 2013) it is defined as an intentional teaching intervention in the educational process, which consists of close, systematic and permanent accompaniment of the student, to support and facilitate the process of building learning of various kinds: cognitive, affective, socio-cultural and existential.

4. Functions of virtual tutoring

Padula (cited in Cabero and Barroso, 2012) defines the function of the virtual tutor as the guiding action exercised by one or more teachers to each student with the aim of facilitating "the understanding of the contents, the interpretation of the procedural descriptions, the appropriate time and form for the completion of work, exercises or self-assessments, and in general for the timely and personalised clarification of any type of doubt" (p. 25).

Following Cabero's line (quoted by different authors such as Llorente, 2006; Cabero and Román, 2006; Cabero and Barroso, 2012; and GIZ and Educal, 2012), the following five functions are defined for the virtual tutor:

– Technical: the teacher must ensure the student's access to the virtual classroom as well as ensure that students are familiar with the tools to be used within the environment.
– Academic: the tutor must master the contents, possess skills to carry out activities, diagnose and formatively assess their students.
– Organisational: this function establishes the steps to follow for the development of the course and distributes time.
– Guidance: the tutor must also give follow-up and guidance to each of the students in order to guarantee their learning.
– Social: it seeks to minimise the feeling of isolation, loss or lack of motivation that can occur when the participant interacts by means of the computer.

5. Tutoring at the University of Veracruz

In this sense, the Universidad Veracruzana from the 1999 school year began a stage of transformation in the curricular organisation, which originated the transition from a rigid structure to a flexible one in its study plans, this structure aims to develop an integral formation in the students based on four educational purposes: intellectual formation, human formation, social formation and professional formation. Likewise, flexibility gives students a margin of autonomy in terms of making decisions related to the construction of their academic credit load. In this context, we can thus assert that tutorial work is a fundamental tool to contribute to the achievement of these goals and to provide the necessary information and support to students in making academic decisions. (Universidad Veracruzana, 2009).

The Institutional Tutoring System aims to support students in solving academic problems, promoting their autonomy and comprehensive training, as well as helping to improve their academic performance, based on individual or small group attention. For the systematisation of tutorial work, the UV created a special section on its official website for both tutors and students, where you can find spaces such as: contact details, messages, my students, tutorial planning, tutor performance evaluation, self-evaluation, tutorial system, curriculum and tutorial teaching, where tutors can consult all the information related to their students, such as: who are their students, what is their credit progress, how has their tutoring performance been, what recommendations does the system provide, etc. (Fig. 1).

Figure 1 Institutional Mentoring System

Likewise, on the EMINUS Institutional Platform, tutors also have a space to keep in touch with their mentees, publish information related to the curriculum, send messages, plan events, share videos, event room and collaboration space. (Fig. 2).

Figure 2 EMINUS Institutional Platform

In addition, the UV also has a student portal where young people can consult valuable documents such as: Institutional Tutoring Regulations, Student Guide, student statutes, school control guidelines, i.e. they have at their fingertips the necessary information to conduct themselves during their stay at the university, in addition to the support provided by their academic tutor.

Visionary as always, the UV already contemplated in 2003, in the document published by Beltrán, J. and Suárez, J. an exclusive section for electronic tutoring, and at the beginning of this century, scientific and technological advances demanded new forms of attention such as email and chat, and later other media such as WhatsApp, Telegram, Instagram, Facebook, Google, Meet, Meetup, etc., emerged. Telegram, Instagram Facebook, Google Meet, Zoom, Microsoft Teams, among others, with which the forms of attention were diversified and increased, which to some extent favoured the tutorial work in the pandemic.

6. Types of tutoring at the University of Veracruz

The types of tutoring that exist in the UV are:

−   Academic tutoring. It consists of the follow-up given by an academic tutor to the students' school career during their stay in the educational programme, in order to guide them in the decisions related to the construction of their professional profile, based on the study plan; academic tutoring is characterised by its personal nature, being a continuous, coherent and cumulative process (UV, 2022).
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−   Tutorial teaching. This refers to the personalised attention given by an academic called a tutor, aimed at supporting students who require it, to strengthen their learning processes related to the theoretical and heuristic knowledge of educational experiences (EE), or who are interested in a broader disciplinary training, through the development of Comprehensive Training Support Programmes (PAFI). (UV, 2022).

−   Tutoring for artistic appreciation. This is an activity with credit value for the Free Choice Training Area and recognised in the Academic Training Programme. The guidelines, criteria for participation, as well as the recognition awarded to students and academics are defined in the document Operation of tutoring for artistic appreciation (UV, 2022).

−   Mentoring for research. Tutoring for research is an activity with credit value for the Free Choice Training Area, with the purpose of incorporating students in research projects. The guidelines, participation criteria, as well as the awards given to students and academics are defined in the document Operation of tutoring for research (DGDIE, 2022).

With all of the above, the Universidad Veracruzana aims to provide its students with support for comprehensive training that allows them to make informed, responsible and accurate decisions about their academic careers.

7. Methodology

Due to its methodological approach, this study makes use of quantitative research, which is that in which quantitative data on variables are obtained and analysed and the association or relationship between quantified variables is studied (Sampieri, 2007). It was descriptive in nature. The main objective of descriptive studies is to provide a more accurate picture of the dimensions of the problem or situation, to prioritise them, and thus find elements of judgement to establish policies or operational strategies that enable their solution (Rojas Soriano, 2013).

The technique used to collect the information was the survey, which is a technique for acquiring information of sociological interest, by means of a previously prepared questionnaire, through which the opinion or assessment of the subject selected in a sample on a given issue can be ascertained. The questionnaire was structured in five sections. Academic support. 2. Professional Orientation, 3. Personal Development, 4. Integration and Permanence, 5. Academic Tutor Performance and two open questions in which the young people freely expressed how they perceived the attention of their tutors and some recommendations for improvement. The application was carried out through a Google form due to the confinement in which they were still, both teachers and students, this form was shared via email and WhatsApp groups. The data were processed automatically as they were answered. From the data collected, we proceeded to interpret and analyse them, focusing on those points that allowed us to resolve the purposes of this research.

8. Participants

This research was carried out in the Faculty of Pedagogy of the Universidad Veracruzana Región, Campus Poza Rica and as mentioned at the beginning, the study sample consisted of a total of 120 tutors from different academic tutors, as well as from different semesters, the population being made up in the following way:

Table1

Period/Semester	No. Of students
Second	30
Fourth	24
Sixth	20
Eighth	28
Tenth	18
Total	**120 tutors**

9. Results

In this section we present the most significant results obtained from the application of the survey to the students of the Faculty of Education of the UV, Poza Rica-Tuxpan Region. The following results stand out:

Table 2

¿ What type of tutoring do you prefer?	
On-site	77 %
Virtual	13 %
Both	10 %

Source: Own Elaboration

As a starting point, we wanted to ask the tutors about the type of attention they prefer, the answers obtained were that 77% of the respondents stated that they prefer the face-to-face mode, which is not surprising given that they are used to the traditional way, i.e. that the tutor is the one who calls them, who chooses the topics to be addressed, interview in an office, etc., in contrast, 13% of the students showed an inclination for the virtual mode, and the remaining 10% said that they do not care which mode they prefer.

Table3

¿ How was the attention you received from your academic tutor?	
Excellent	89 %
Good	11 %
Fair	0 %
Poor	0 %

Source: Own Elaboration

The following section was aimed at finding out what is the perception that the students have about the attention they received from their academic tutors, the answers given by them show that 89 % of them consider that the attention was excellent, while 11 % think it was good, something encouraging was that no student thought that the attention was regular or bad, which shows that all of them perceive the virtual tutoring in a positive way.

Table 4

How was the Career Guidance provided by your academic tutor?	
Excellent	95.4 %
Good	4.76 %
Fair	0 %
Poor	0 %

Source: Own Elaboration

Regarding the professional guidance provided by their academic tutors, 95.4 % of the young people think that it was excellent, while 4.76 % considered it was good, as in the previous questionnaire, none of the tutors expressed having had a regular or bad professional guidance, which indicates that the teachers-tutors performed their functions adequately.

Table 5

How do you think the attention given by your academic tutor has contributed to your personal development?	
Excellent	90.48 %
Good	9.52
Fair	0 %
Poor	0 %

Regarding this question, 90.48% of the students surveyed stated that the attention provided by their tutors has contributed in an excellent way to their personal development and 9.52% thought it was good. It is noteworthy that the students recognize the effort made by their tutors and do not mention having received regular or bad attention.

Table 6

¿Cómo fue la integración y permanencia de tu tu tutor académico a las sesiones de tutoría?	
Excellent	90.48 %
Good	9.52
Fair	0 %
Poor	0 %

Regarding this question, 90.48 % of the students surveyed expressed that the integration and permanence of their tutors in the tutoring sessions was excellent. While 9.52 % considered that it was good. It is important to recognise this perception of the students, as it shows the level of commitment assumed by their tutor-teachers to provide them with the best possible attention.

Table 7

Did your tutor include topics and activities related to your interests, needs and academic background?	
Always	85.71
Regularly	14.29
Rarely	0 %
Never	0 %

Regarding whether their tutor included topics and activities related to their interests, needs and academic history, 85.71% said that their tutor always provided them with relevant information in a timely manner, while 14.29% thought that this information was always relevant and timely, it should be noted that no tutor considered the information to be regular or bad.

Table 8

Did your tutor solve your doubts or channel you appropriately to the person who could solve them?	
Always	100 %
Regularly	0 %
Rarely	0 %
Never	0 %

With regard to this question, 100% of the tutors surveyed agreed that their tutor resolved their doubts at all times or channelled them to the person who could resolve them best. This result is very good, as it shows that the tutor-teachers make an effort every day to adequately fulfil their work as tutors.

Table 9

Did your academic tutor demonstrate time availability?	
Always	95.24 %
Regularly	4.76 %
Rarely	0 %
Never	0 %

Source: Own Elaboration

Regarding this question 95.24 % of the tutors surveyed agreed that their tutor always showed availability of time to attend them, even in non-school hours. Only 4.76% thought that their tutor regularly took the time to attend to them. It is worth noting that no students said that they are rarely or never attended to, which shows the commitment of the teachers to their work as tutors.

Other results

In order to find out what topics they would like to see addressed in the tutoring sessions, they were asked an open question, the most outstanding answers were:

– When and how to ask to do the service
– To deal with topics that involve us expressing how we feel and what we think about the activities we carry out during the semester.
– I agree with the activities and the way in which the tutorials are carried out.
– In all the sessions we have had, they have been very important and all of them are for career purposes.
– At the moment all the activities seem to me to be correct and pleasant.
– They should explain a bit more about how to get a degree by average and the thesis.
– How we will organise ourselves.
– How to get more credits and finish the degree in less time.
– Explain about scholarships or send us the information by WhatsApp.

Finally, we wanted to ask what recommendations they would make to us for a better service, the results were:

– To live together more, to get to know each other better.
– I don't have any suggestions, everything seems fine to me.
– I think it's fine the way it is.
– To have interactive meetings where we all participate.
– I think that the topics that she gives us to know are exact and she does it in a synthesised way, apart from asking us all the time if there are any doubts and that if on another occasion we have them we can dial her or send her a message and that seems excellent to me.
– Maintain more continuous communication, not only when there are tutoring sessions.
– Have a coffee-tutor session from time to time.

Conclusions

To conclude, we can say that tutoring involves communication and interaction processes on the part of teachers; it also involves personalised attention to students, based on knowledge of their problems, their needs and their specific interests. Undoubtedly, for many students, tutoring becomes a fundamental and transversal need in their integral and professional training. However, for this to happen, they need tutors who are committed to their work, who accompany them from the first to the last semester, who work ethically and professionally. It is also necessary for them to have a profile in counselling and psychological guidance so that, based on the student's vision, they can propose tutoring strategies that help their students to overcome the various problems they face on a daily basis. It is also essential to use technological tools such as WhatsApp, Facebook, Instagram, Telegram or telephone, email, EMINUS platform, among others, as resources to maintain closer communication with them.

Finally, we can conclude that tutoring is an extremely important activity for students, as through it they receive support, guidance, accompaniment and orientation from their tutors in order to make good, responsible and informed decisions and thus have a better stay at the university.

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Chapter 7 The impact of Virtual Tutoring on the students of the Faculty of Pedagogy of the Universidad Veracruzana

Capítulo 7 El impacto de la Tutoría Virtual en los estudiantes de la Facultad de Pedagogía de la Universidad Veracruzana

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Abstract

This paper is designed under the qualitative paradigm, in order to collect the perception together with the level of satisfaction of the students of the Faculty of Pedagogy of the Universidad Veracruzana, regarding the virtual tutoring service, carried out before the pandemic of COVID-19, which imposed virtuality as a new environment for the Academic Tutor, agent who, in a strategy of innovation of the tutorial practice had to be trained in the handling of digital tools, this because the tutorial moments were executed through distance modalities and in an asynchronous way. Adapting the technological resources, training and platforms of the University Institution, being the presence of a figure such as the Tutor, increasingly necessary in this new modality, where a sense of social and educational uncertainty prevailed.

Satisfaction, Innovation, Virtuality

Resumen

Este trabajo de investigación, se encuentra diseñado bajo el paradigma cualitativo, con el fin de recabar la percepción aunado al nivel de satisfacción de los alumnos de la Facultad de Pedagogía de la Universidad Veracruzana, respecto al servicio de tutorías virtuales, efectuadas ante la pandemia de COVID-19, que impuso la virtualidad como nuevo ambiente para el Tutor Académico, agente quien, en una estrategia de innovación de la práctica tutorial tuvo que capacitarse en el manejo de las herramientas digitales, esto a causa de que los momentos tutoriales se ejecutaron mediante modalidades a distancia y de manera asincrónica. Adecuando los recursos tecnológicos, formación y plataformas propias de la Institución Universitaria, siendo la presencia de una figura como el Tutor, cada vez más necesaria en esta nueva modalidad, donde prevalecía una sensación de incertidumbre social y educacional.

Satisfacción, Innovación, Virtualidad.

1. Introduction

Currently in the Faculty of Education, tutoring has become a space for reflection, analysis and transformation between the academic tutor and the student, evidenced in the purpose of virtual tutoring, which is to provide academic support for their comprehensive training. Since the COVID-19 pandemic, the panorama that we all knew changed, with this; the face-to-face modality was transferred to a screen and the roles in different areas were modified, generating a new environment for the Academic Tutor, who had to be trained in the handling of digital tools; This was due to the fact that the tutorial moments were carried out through distance modalities, adapting the forms and platforms of the University Institution, being the presence of a figure such as the Tutor increasingly necessary in this new modality, where social and student uncertainty prevailed.

Virtual tutoring not only played an academic role, but also formed part of the extracurricular moments of the students, as the tutor in the virtual modality was given the task of getting to know their students in all possible facets and thus have a deeper connection with their students, thus becoming the connecting entity of the student with the educational institution and other teachers.

During the height of the COVID-19 pandemic, the virtual tutoring modality was a fundamental contribution, due to the establishment of a distance education system that evolved efficiently and quickly, to the needs of the moment, even so, encountering numerous adversities from cognitive, social and even climatological.

2. Development

We can understand by tutoring, the set of strategies, which focus particularly on the student, for their academic and human procession, which allows the improvement in different areas during their stay at the university, in each of the tutorial moments, in which aspects that favour the student are covered.

As mentioned by Castillo, Torres and Gonzáles (2009) "the purpose of tutoring is to dynamise in a convenient way the relations between the educational system and society" (p.39), always understanding that students are the protagonists responsible for their academic and personal growth.

Throughout the students' academic career, tutoring is an important part of their development, since it structures the teaching process in an integral and specialised way. This new modality allowed the various agents to understand that tutoring is an environment that transcends the academic in order to develop guidance on student development, adapting didactic strategies in a digital environment. The new modality was also consecrated as a challenge for students, who, although considered mostly digital natives, faced factors that played against the efficient development of virtual tutoring, ranging from lack of connection, electronic equipment failures and even weather conditions.

Establishing virtual tutoring means establishing a relationship between tutor and student, without being physically close, but in search of a teaching that complements the student, from an academic, multidisciplinary and intrapersonal point of view.

3. Justification

The purpose of this research work is to make visible the experiences lived by the students of the Faculty of Education, evidencing their level of satisfaction during this event, the impact on their academic training and if there were irregularities or deficiencies in this practice, so that its development becomes more efficient as the reinsertion to the face-to-face activities is established by the student community and make visible the contrast of both practices, allowing to develop and evaluate the activities carried out in the virtuality, as a reference to those carried out in the educational institution.

At this stage, virtual tutoring ensured communication between tutor and student as a teaching method. Within an academic context, we identify tutoring as an element that is executed in conjunction with the teaching activity, with the aim of developing an integral practice of education, as it integrates aspects such as knowledge and experiences from the student's personal perspective.

4. Objectives

General objective

To identify the degree of satisfaction of the students of the Faculty of Education with the Virtual Tutorials.

Specific objectives

– To show the perspective of the student community regarding the development of virtual tutoring.
– To find out the level of commitment of the academic tutors in the virtual tutoring process.
– To identify the practices carried out during the sessions and their impact on the students.

5. Methodology

Since the semesters of gradual reintegration to face-to-face activities, the desire to identify the degree of efficiency and impact of a formative activity such as tutoring in the students of the Faculty of Pedagogy of the Universidad Veracruzana in the city of Poza Rica has become imperative.

For the development of this research, the methodology used was quantitative, within a positivist-empiricist paradigmatic approach, providing the quantification of data, an approach whose tendency, as King, Keohane and Verba (2000) state "is usually based on numerical measures of certain aspects of phenomena to reach a general description or test causal hypotheses" (p.14).

In addition to this, the survey was used as a research technique, which makes it possible to observe the facts through the assessment of the responses that are forged by the respondents or interviewees themselves, this instrument designed was digitised on the Google FORMS platform, for the socialisation and resolution of a sample of the student community belonging to the different semesters that make it up.

6. Results

Graph 1.1 Percentage of students who maintained communication with the Academic Tutor

Did you maintain communication with your academic tutor during the virtual period?
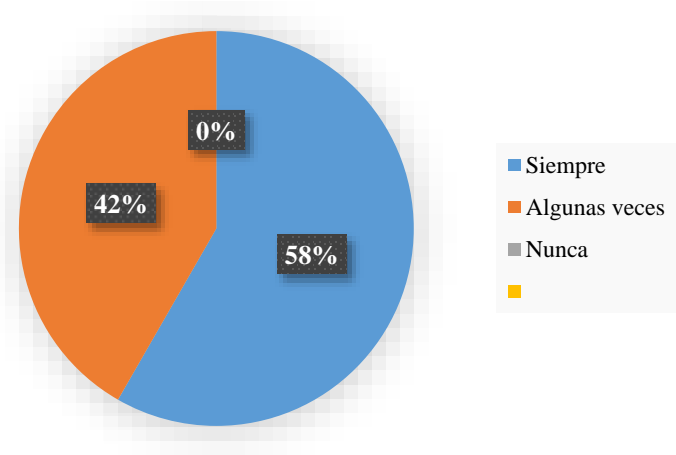
Source: Own Elaboration

According to the graph 1, it is positively evidenced that communication was always maintained between tutors and students in the virtual world, in 58% of the students surveyed. This is complemented by the 42% of the surveyed students who answered Sometimes, regarding the communication with their Academic Tutor during the tutoring sessions.

Figure 1.2 Communication and interaction during virtual sessions

How was the communication and interaction with your Academic Tutor during the virtual sessions?
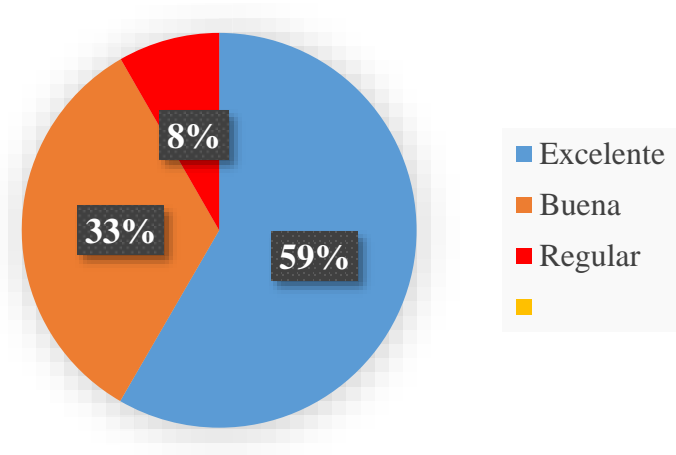
Source: Own Elaboration

59% of the students maintained excellent communication and interaction with their Academic Tutor during the virtual sessions, together with 33% who considered the communication with their tutor to be good, while 8% of the respondents reported this practice as regular.

Graph 1.3 Virtual tutoring support

How was the Virtual Tutoring support during the COVID-19 pandemic?
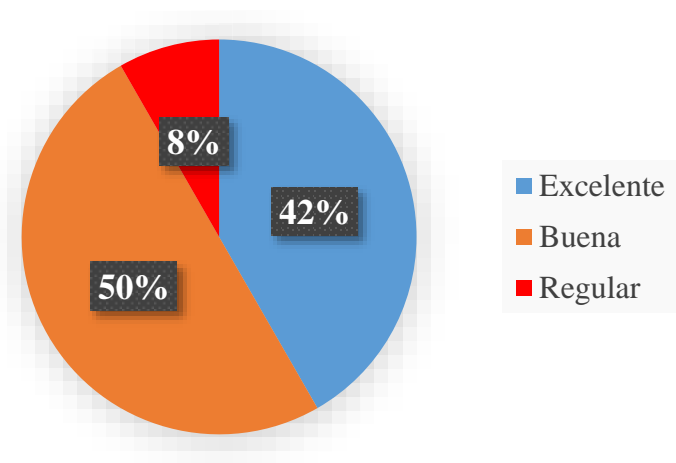
Source: Own Elaboration

According to this graph, 50% of the students surveyed stated that the support provided by the Virtual Tutoring during the pandemic was good, complemented by 42% who rated it as excellent, while only 8% of all those surveyed stated that this practice was fair.

Graph 1.4 Satisfaction with the work of Virtual Tutoring

How satisfied were you with the Virtual Academic Tutoring offered to you during the COVID-19 pandemic?
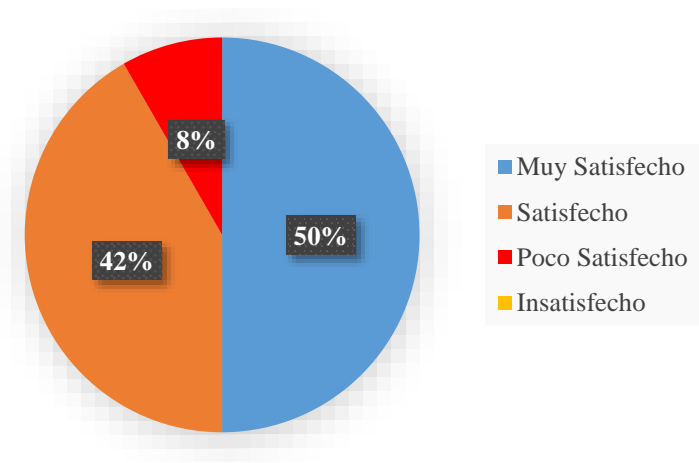
Source: Own Elaboration

The corresponding graph shows that, of the students surveyed, 50% of those present are very satisfied with their Virtual Tutoring, in addition to 42% who state that they are only satisfied, in contrast to the 8% whose position is not very satisfied with the tutoring offered during the pandemic.

Graph 1.5 Topics addressed and their relevance in the Tutoring

Do you consider that the issues addressed during your online tutoring were resolved?
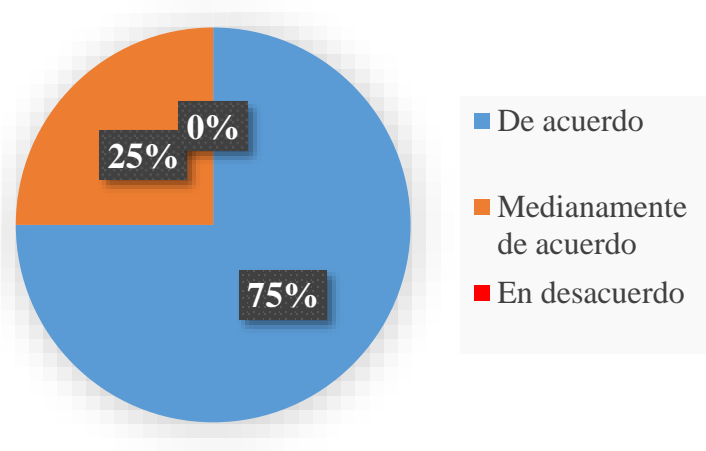
Source: Own Elaboration

According to what is shown in the graph, 75% of those surveyed state that they agree that the issues dealt with during the virtual sessions were resolved by their academic tutors, in addition to the 25% who state that they agree with this premise to a moderate degree.

Graph 1.6 Virtual tutoring as a support for the student's integral development

Do you consider that the Academic Tutorials in their virtual modality were a significant support for your comprehensive training?
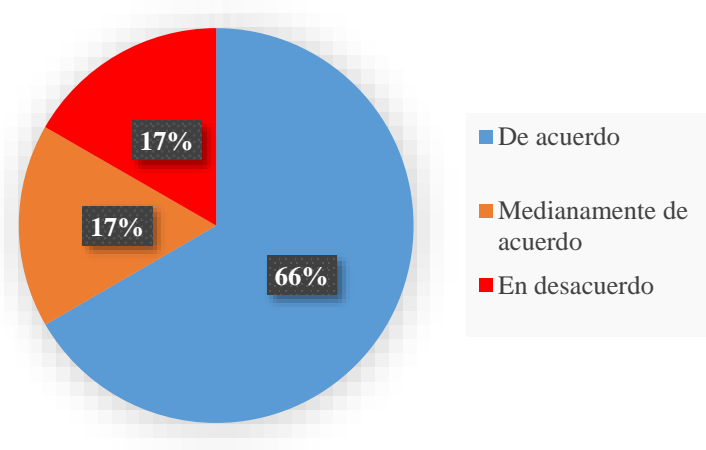
Source: Own Elaboration

It is noteworthy to show that, of the students surveyed, 66% consider that the tutorials in their virtual modality were a significant support in their comprehensive training, complemented by 17% who consider that they moderately agree with the premise and 17% whose position is in disagreement with what was stated.

Graph 1.7 The climate during Virtual Tutorials

During your Virtual Tutoring, did the climate of trust established by your Academic Tutor allow you to express your concerns and disagreements?
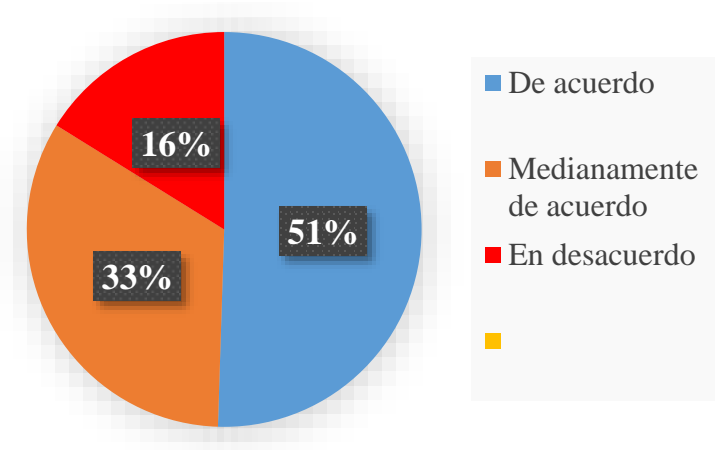
Source: Own Elaboration

According to the graph, 51% of the respondents agree with the premise that the Academic Tutor established a climate of trust to express concerns and disagreements, while 33% of the respondents positioned moderately agree with what was stated, while 16% disagreed with what was stated in the question.

Graph 1.8 Technological tools for tutoring

What technological tools did your academic tutor use to carry out the tutoring?
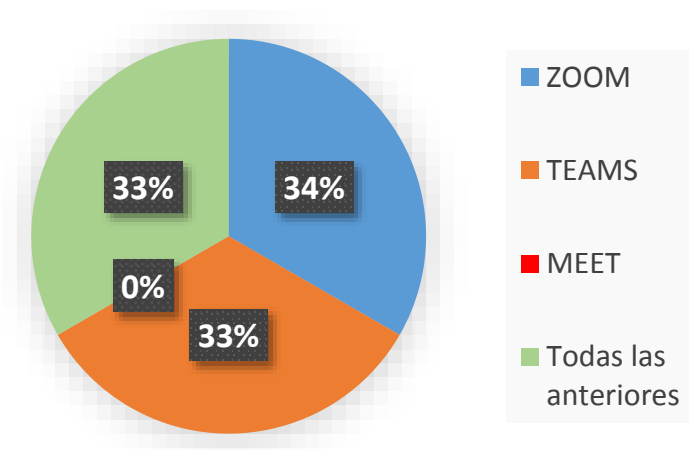
Source: Own Elaboration

The graph above shows a balance in the ZOOM and Microsoft Teams platforms, which, as shown in each one, 33% of the students surveyed responded that they were the technological tools used by their Academic Tutor to carry out the virtual tutoring sessions.

Table 1 The Impact of Virtual Tutoring on Comprehensive Training

How virtual Academic Tutoring impacted on your comprehensive training?	
EFP-01	Well, it was a great support because we could not see each other in person and by connecting we had our doubts solved and we had support from our tutor, even by message he always answered us.
EFP-02	I don't consider that at this stage it has contributed to my education, maybe the first semesters when I didn't know many aspects of the course could have been fundamental, but now I'm about to graduate and I don't need the support any more.
EFP-03	Both the virtual and the face-to-face, my tutor has never changed his way of giving his tutorials, in both modalities there was a great impact on me personally as he was always my guide for my academic stay at all times.
EFP-04	Positively.
EFP-05	In a positive way as it helped me to have a better vision of my career in terms of the different doubts that arose during my academic training.
EFP-06	It seems to me to be a very good option rather than the face-to-face one, as they dedicate more time and attention to resolving doubts and concerns.
EFP-07	Being virtual was a big change, but thanks to my tutor and my willingness in terms of connection hours to talk, we really had no complications to carry out the tutoring process excellently.
EFP-08	It was good, I enjoyed working this way.
EFP-09	She kept me up to date with academic issues.
EFP-10	I consider that it was very bad because I was made to fall behind a semester because of it.
EFP-11	From my point of view it didn't change that much.
EFP-12	It helped me a lot, as my tutor always solved my doubts.

Source; Own Elaboration

7. Conclusions

- With the information gathered and the experience of this stage of virtuality and the gradual reinsertion to the new normality, it is possible to conclude that the figure of the tutor, in this training environment, is vital, specifically in an institution like this, where the curriculum has a comprehensive paradigm in the training of each student, not only providing knowledge but achieving the full development of each one.

- The result of the data collection instrument allows us to interpret a positive impact for the student community of the Faculty, by means of the graphs the attention to the personal and academic needs of the students was visible in most cases, evidencing the level of commitment of the academic tutors in the process of virtual tutoring, together with a practice of deeper communication, since an ideal climate was established for the sessions in the asynchronous environment, denoting a level of satisfaction greater than 90%, with respect to the participating sample.

- The general objective was achieved by identifying the degree of satisfaction of the students of the Faculty of Education with the Virtual Tutorials, with 91.7% of the students surveyed having a positive degree of satisfaction. Together with the perspective of the student community regarding the development of virtual tutoring, as shown by the results of questions 6 and 9.

- This environment allowed for better communication with the academic tutors, in personalised sessions and with greater accompaniment that were satisfactory so that there really was an atmosphere of trust that generated in turn, a real significant support for each student for their integral formation.

- 8 Proposals for Improvement

- In addition to this, one of the possible proposals for improvement would lie in the following:

- Formative training in the use of different platforms aimed at the institution's teachers.

- Although there is training in the use of these digital tools, it is focused on two specific ones, ZOOM and Microsoft Teams, which are ideal for educational applications, but with deficiencies and without exploiting all the resources they possess.

–   The integration of virtual tutoring as a complementary modality to face-to-face tutoring.

–   This is in order to develop that space for communication with greater depth and more individualised attention to the academic and intrapersonal problems of each student throughout the school period.

–   Diversification of topics exposed in the tutoring sessions, to support the integral formation of the student with greater scope.

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Chapter 8 Online tutoring facing the challenges of education in the digital environment, the case of the Higher Technological Institute of Teposcolula

Capítulo 8 La tutoría en línea ante los retos de la educación en el entorno digital. El caso del Instituto Tecnológico Superior de Teposcolula

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Abstract

Currently, we are immersed in a society influenced by technology and that, especially after the pandemic, is undergoing a radical transformation in all its areas. The educational system, as a reflection of society, cannot remain on the sidelines of these changes, hence the accelerated access to Information and Communication Technologies (ICT). Derived from this, this work collects the results of the Institutional Tutoring Program and its online operation model, during the context of the pandemic at the Teposcolula Higher Technological Institute; where different problems stand out, such as the economic situation of the student population; distance learning teaching processes, lack of access to electronic devices; telephone and internet services; and others are directly related to working conditions, family conditions, and expectations, which are not expressly related to the classroom. The objective is to contribute to a theoretical reflection on the work and incidence scheme of the Institutional Tutoring Program during the COVID - 19 pandemic; being that this online model presented serious limitations and difficulties that conditioned access to quality education: economic condition, family situation, gender, geographic location and access to ICTs; as well as the Digital Divide, which refers to inequality in access to ICTs.

Technology, Tutoring, Education, Pandemic, Context

Resumen

Actualmente estamos inmersos en una sociedad influenciada por la tecnología y que, especialmente tras la pandemia, está sufriendo una transformación radical en todos sus ámbitos. El sistema educativo, como reflejo de la sociedad, no puede permanecer al margen de estos cambios, de ahí el acceso acelerado a las Tecnologías de la Información y la Comunicación (TIC). Derivado de lo anterior, este trabajo recoge los resultados del Programa Institucional de Tutorías y su modelo de operación en línea, durante el contexto de la pandemia en el Instituto Tecnológico Superior de Teposcolula; donde destacan diferentes problemáticas, como la situación económica de la población estudiantil; procesos de enseñanza a distancia, falta de acceso a dispositivos electrónicos; servicios de telefonía e internet; y otras están directamente relacionadas con las condiciones laborales, familiares y expectativas, que no están expresamente relacionadas con el aula. El objetivo es contribuir a una reflexión teórica sobre el esquema de trabajo e incidencia del Programa Institucional de Tutorías durante la pandemia COVID - 19; siendo que este modelo en línea presentó serias limitaciones y dificultades que condicionaron el acceso a una educación de calidad: condición económica, situación familiar, género, ubicación geográfica y acceso a las TICs; así como la Brecha Digital, que se refiere a la desigualdad en el acceso a las TICs.

Tecnología, Tutoría, Educación, Pandemia, Contexto

1. Introduction

In the context of the pandemic, ICTs provided the possibilities to address obstacles in isolating contexts. The need to communicate and continue with distance learning curricula produced an exponential growth of activity in digital environments, consolidating an increase in the use and expansion of the processes of appropriation of digital technologies, but which unfortunately also revealed the evident digital inequality in the educational environment. Oaxaca is one of the states with the largest indigenous population, a sector that today continues to demand attention and inclusion in different areas, such as higher education, which has been a topic of interest for sociological, anthropological and educational approaches, since the level of education of citizens is an important indicator of overcoming marginalisation and backwardness as a way to quality of life.

For the indigenous student population, pursuing a university degree is a great challenge, since most of them, upon leaving a rural environment to join urban spaces, face different problems, such as: gender inequality, discrimination, a language different from their own, as well as remoteness from their place of origin, and economic deprivation, to mention a few. According to the National Institute of Statistics and Geography (2020), in Oaxaca, out of every 100 people aged 15 and over, 59 have basic education; 16 have secondary education; 11 have higher education and 12 have no schooling; the average level of schooling is the first year of secondary education. The Instituto Tecnológico Superior de Teposcolula is located in the Mixtec region, which is made up of 155 municipalities in the state, so that more and more indigenous young people can have access to higher education without having to migrate to urban environments.

Therefore, the present work is based on the normative framework, which integrates the Educational Model for the 21st Century and the Academic-Administrative Guidelines Manual of the National Technological Institute of Mexico; the referential framework; the contextual framework; and the results of the tutorial work corresponding to the periods August - December 2021 and January - July 2022; together with the lines of tutorial action and the scheme of distance work in the context of the COVID - 19 pandemic. All of this is based on an inclusive model that contemplates equal attention between men and women according to the different contexts of their original communities, mainly in the Mixtec region of Oaxaca.

2. Development

The Institutional Mentoring Programme emerges as the object of this theoretical reflection based on the analysis of the facts of professional experience in the case of the Instituto Tecnológico Superior de Teposcolula located in the Mixtec region of the state of Oaxaca, which from its beginnings in 2009 adopted the approach of education by professional competences, and from this the Institutional Mentoring Programme, which was formalised from August 2012, since previously there was no structure focused on the Guidelines for work and execution of the same.

Currently, the ITS in Teposcolula has five degree programmes: Bachelor's Degree in Gastronomy, Computer Systems Engineering, Administration, Community Development and Logistics Engineering. As a result, this paper focuses on the Institutional Tutoring Programme, since most of the student population comes from rural environments (mainly from the Mixtec region), and has various social, cultural and pedagogical characteristics, such as: introversion (mainly in the first semesters); difficulty in adapting to different study techniques; population from indigenous peoples, generally speakers of Mixtec, Zapotec and Cuicatec, in its different variants; as well as a growing trend of the inclusion of women in higher education.

In addition to the above, it is important to mention that through tutoring we work with attention and prevention of different problems that affect school performance, from internal to external instances; being a priority, as they guide us towards an inclusive education both in terms of gender and the inclusion of the indigenous population.

3. Literature review

Basic conceptual underpinning

Tutoring comprises a set of activities that promote learning situations and support the correct development of the academic, personal and professional process, by guiding and motivating students, so that they in turn advance and effectively conclude their own training process (UNESCO, 1998 in DGEST, 2013).

According to ANUIES (in DGEST, 2013), tutoring is a personal and academic accompaniment throughout the training process to improve academic performance, help students solve their school problems, develop study, work, reflection and social coexistence habits. For its part, UNAM (2012) defines tutoring as a pedagogical activity whose purpose is to guide and support students during their training process. This activity does not replace the tasks of the teacher, through which students are presented with different contents so that they can assimilate, master or recreate them through innovative synthesis.

Normative framework Education Model for the 21st Century

The Educational Model for the 21st Century: *"Training and Development of Professional Competences"* is a document which presents the Educational Model that the National Technological System of Mexico (TecNM) has structured and oriented towards the training and development of professional competences. Governed by the premise of an integral training based on three areas "being, knowing how to be and knowing how to do", this model is structured in three essential dimensions for the educational process: Philosophical, Academic and Organisational:

1. Philosophical dimension. It focuses on the transcendental reflection of the person, reality, knowledge and education; as components that allow human beings - in their academic training stage - to identify themselves as persons, citizens and professionals capable of participating with an ethical attitude in the construction of a democratic, equitable and just society.

2. Academic dimension. It assumes the theoretical references of the construction of knowledge, of meaningful and collaborative learning, of mediation and effective evaluation and of the practice of acquired skills, which are inscribed in two psycho-pedagogical perspectives: sociocultural and structuralist.

3. Organisational dimension: Its essential connectors are the vision and mission of the system, and in this field, process management and educational administration deploy a perspective of excellence based on high performance and transformational leadership.

The academic dimension is fundamental, since it includes the psycho-pedagogical level, which is composed of the learning process, educational content, didactics, teaching strategies and evaluation; the curricular level (study plans and programmes and academies); and the social level, which addresses current contexts and professional competences. Within the didactic relationship between students and teachers, mutual respect, trust, honesty, responsibility and empathy stand out as the basis for creating environments that favour learning processes, for which the ideal conditions must be generated, taking the Institutional Tutoring Programme as a starting point.

The TecNM institutions face multiple social demands in this area, among which stand out: the active participation in the knowledge society at national and international levels; the training and development of professional competences; the creation of common spaces for technological higher education; the recognition of academic programmes; and the certification of processes, to mention a few. It is therefore important to consider the effects on academic performance of family income, family expectations, social and cultural contexts, the characteristics of the school and the role of the teacher, to take into consideration the role of variables associated with the social, psychological, pedagogical, affective and behavioural functioning of the students themselves; the types of learning; and above all, to address the three approaches that the system of professional competences demands: knowing (knowledge), knowing how to be (attitude) and knowing how to do (skills) determined as a result of their interaction with the school, family and social environment.

In the case of the Instituto Tecnológico Superior de Teposcolula, tutoring implies a human relationship of respect and trust between the tutor and the student, involving various values to promote the academic, personal and professional development of the latter; all this as part of the accompaniment that the tutor (teacher) will provide to the student during his or her academic training.

Manual of academic-administrative guidelines of the Tecnológico Nacional de México

In the Academic-Administrative Guidelines Manual of the Tecnológico Nacional de México 2015 - 2016, within the Guidelines for the development of the Institutional Mentoring Programme, it states in point 15.3 Definition and characterisation that: "mentoring is a process of group or individual accompaniment that a tutor provides to the student during his or her stay at the Institute, with the purpose of contributing to his or her integral formation and influencing the institutional goals related to educational quality; raising the terminal efficiency rates; and reducing the failure and drop-out rates". As a strategy that strengthens the integral formation of the student community, based on a humanistic and inclusive vision, academic tutoring complements teaching practice as a factor of change in terms of integral support to the student community in the academic, cultural and human development fields.

4. Frame of reference

As shown in Figure 1, the Instituto Tecnológico Superior de Teposcolula is located in the town of San Pedro y San Pablo Teposcolula, which belongs to the municipality of the same name in the Mixtec region of the State of Oaxaca. The Municipality of San Pedro and San Pablo Teposcolula is located in the northwest of the State of Oaxaca, at an altitude of 2,180 metres above sea level, and its distance from the State Capital is 142 kilometres.

Figure 1 Micro-location of the Instituto Tecnológico Superior de Teposcolula
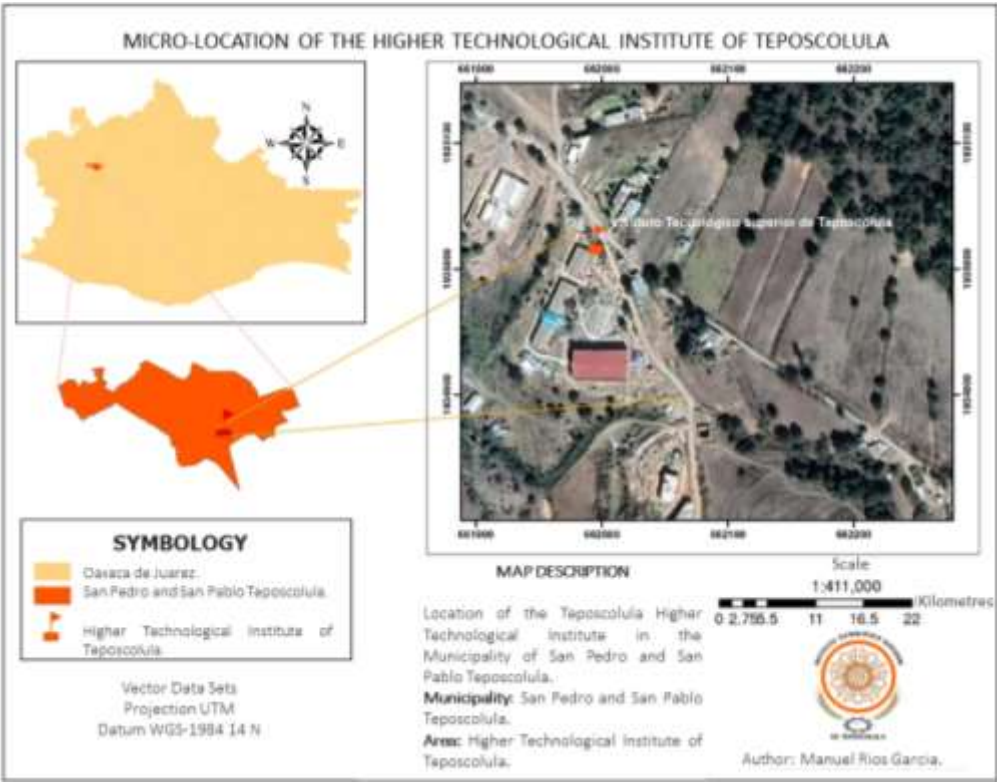
Source: Ríos García M. 2022

5. Contextual framework

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In addition to the above, it is important to mention that through tutorials we work with attention and prevention of different problems that affect school performance, from internal to external instances, being a priority, as they guide us towards an inclusive education both in gender issues and in the inclusion of the indigenous population.

6. Strategies implemented in response to the crisis situation caused by the pandemic. Tutoring in the face of the pandemic

According to the Tutoring Manual of the Instituto Tecnológico Superior de Teposcolula (2018), among the problems identified in the performance of the students in the institution are those described in the following table:

Tabla 1 Indicadores de Atención Tutorial

Indicador	Criterio de identificación
1. Poca adaptación al medio académico.	a. Poco sentido de pertenencia por el Instituto Tecnológico en los primeros semestres. b. Falta de familiarización con enfoque educativo basado en competencias profesionales. c. Bajo rendimiento académico y dificultad de adaptación al cambio.
2. Problemas de Salud.	a. Problemas visuales, auditivos y motores. b. Enfermedades físicas que no han sido atendidas por desconocimiento o situación económica. c. Enfermedades de transmisión sexual. d. Problemas emocionales derivados de algunas relaciones de pareja o de las diferentes situaciones familiares presentadas. e. Problemas de adicción, principalmente con alcohol.
3. Problemas Vocacionales.	a. Durante el primer semestre expresa escaso interés por los contenidos de algunas asignaturas. b. Presentan inasistencias sin justificación alguna, muchas veces por la influencia negativa de terceras personas. c. La carrera fue elegida como segunda opción y principalmente porque fue a la única a la que pudo acceder por cuestiones económicas. d. Poca motivación para el estudio, falta de metas profesionales, desconocimiento de sus aptitudes y habilidades.
4. Relación docente -estudiante	A su ingreso al Instituto Tecnológico, la comunidad estudiantil expresa haber vivido situaciones en el nivel medio superior: a. Discriminación por su condición étnica. b. Maltrato, acoso, prepotencia o insultos por parte del docente.
5. Relación estudiante – estudiante.	a. Aislamiento. b. Violencia escolar (física o emocional). c. Manifiesta amedrentamiento por parte de los compañeros.
6. Toma de decisiones académicas.	a. Desconocimiento de los Lineamientos Académico – Administrativos y de su Plan de Estudios. b. Cambios de carrera sin un estudio previo.
7. Problemas Afectivos.	a. Asilamiento, poca capacidad de concentración y atención. b. Somnolencia, angustia y tristeza. c. Poca confianza en su persona y baja participación en clase.
8. Perfil de ingreso inadecuado.	a. Bajo puntaje en el examen de nuevo ingreso en determinadas áreas de conocimiento o habilidades. b. Poca comprensión de las temáticas. c. El docente de la asignatura localiza deficiencias en los conocimientos previos.
9. Falta de Hábitos de Estudio.	a. Desconoce técnicas de aprendizaje empleadas en el enfoque de competencias profesionales. b. Poca planificación de las actividades académicas. c. Realiza su estudio en un lugar insalubre, poca ventilación y con ruidos y dedica poco tiempo de estudio en casa. d. No tiene una técnica de estudio definida.
10. Capacidades Sobresalientes	a. Desempeño académico más allá de la media de edad y grado. b. Rapidez en la ejecución.
11. Insuficientes Recursos Económicos	a. Necesidad de trabajar/Ingresos insuficientes. b. Carecen de algún equipo de cómputo. c. Retraso en entrega de trabajos por causas económicas. d. Casado/a y con familia a edad joven. e. Incompatibilidad de horario laboral y escolar. f. Mala alimentación.
12. Dificultades de socialización	a. Introversión y aislamiento. b. Depresión, agresividad indisciplina.
13. Situación de Violencia	a. Se le observa con una pareja violenta. b. Dependencia emocional hacia la pareja.
14. Relaciones de pareja,	a. Aislamiento y distracción. b. Falta de apoyo por la pareja. c. Inasistencias constantes y abandono de sus estudios.

Own elaboration based on the Tutoring Manual at ITSTE 2018

Líneas de acción

Desde 2018 se ha contemplado el esquema de trabajo tutorial fundamentado en los Indicadores de Acción Tutorial (Tabla 1). En marzo 2020, tras el inicio de la Pandemia por COVID - 19, este modelo quedó pausado hasta el término del semestre. Para Agosto de 2021, se reanudaron las tutorías en la modalidad virtual, donde se incluyeron las siguientes áreas: Personal docente, servicio de psicología, servicio de enfermería, jefatura de división y tutores. Ya para 2021, se consolido nuevamente el esquema de trabajo, con el apoyo de las áreas internas y externas.

Considerando que las instancias de apoyo y atención se refieren a aquellas que prestan un servicio al estudiante, que le permite remediar y/o mejorar su condición académica y/o personal, con lo cual se establecen las condiciones mínimas necesarias para generar el aprendizaje y con ello, que la población estudiantil continué con su formación profesional; éstas instancias son de índole interna o externa. Dentro de las internas se encuentran las siguientes:

Table 2 Lines of Tutorial Action

Area	Actions
Teaching staff.	Consultancies: a. Personalised attention when the student is absent due to personal problems. b. Regularisation in subjects where comprehension is poor.
Servicio de psicología.	a. Orientation interview. b. Assessment of vocational profile. c. Psychological assessment. d. Preventive Actions. e. Therapeutic Process.
Servicio de Enfermería.	a. First Aid. b. External Referrals: Outpatient Consultation. c. Preventive Actions. d. Review of the validity of the social security number.
Centro de información.	a. Internal and external loan and consultation of general literature. b. Support for the search of bibliography required by the applicant.
Jefatura de división.	a. Assigns academic loads. b. Provides advice on guidelines. c. Promotes procedures for complementary activities, social service and professional residency.
Tutores y tutoras.	a. Identifies problems and generates referrals to different bodies if necessary. b. Accompanies students throughout their academic training.

Own elaboration based on the Tutoring Manual at ITSTE 2018.

External instances refer to public and/or private institutions that offer various services, to which access can be obtained through consultation and/or collaboration agreements. Referrals to external bodies are only carried out by the people in charge of attention in internal bodies, not directly by the tutor (as it is the tutor who carries out referrals to internal bodies). The Instituto Tecnológico has the following support institutions:

1. Municipal Instance for the support of women.
3. State Council for the prevention and control of AIDS (COESDIDA).
4. General Services of Alcoholics Anonymous, Civil Association.
5. State Human Rights Commission.
6. Secretary of Women of Oaxaca (SMO).
7. Civil Society Organisations.

7. Methodology

In accordance with its objectives, the research has a mixed approach. In order to investigate situations prevalent in second semester students, a quantitative approach was used, since a questionnaire of 20 questions was applied through Google Forms, addressed to 62 second semester students of the five study plans, who successfully completed the Tutorials during the periods August - December 2021 and January - July 2022. In the case of qualitative information, a focus group was carried out.

As for the sources of information, both primary and secondary sources were used.

8. Results

Tutorial Action Plan

At the beginning of each semester, the Institutional Tutoring Coordination carries out a diagnosis to identify the main needs of Tutorial Action. Based on the results obtained for the period August - December 2021, the Tutorial Action Plan (TAP) was developed for First Semester students, according to the data shown in Table 3.

Table. 3 Lines of tutorial action, August - December 2021

Ordinary Tutorials (First Semester)		
Theme	**Hours allocated**	**Modality**
How my school works		
Framing session.	One to two hours.	Group.
School regulations: procedure and formalities.	Two hours.	Group or individual.
Tools for tutorial activity.		
Interview.	One hour.	Individual.
Academic Skills Development.		
Study habits and techniques.	One to two hours	Group
Time management strategies.	One to two hours	Group
Use and importance of digital platforms.	One to two hours	Group
Human Development		
Emotional health: self-esteem, anxiety, depression, stress.	One to two hours.	Group
Addictions.	One to two hours.	Group
Free theme for detecting/addressing needs or problems with students.	4 hours spread over the whole semester	Group or individual.
Theme: Professional Skills		
Life and career plan.	One to two hours.	Group
Analysis of the entry profile, graduation and career field.	One to two hours.	Group
Drawing up the Curriculum Vitae.	One to two hours.	Group
Closing.	One hour.	Group
Follow-up Tutorials (From the Third Semester onwards)		
Theme	**Semester**	**Hours allocated**
Academic Monitoring	Tutorials for the semester to which they have been assigned.	Two hours per semester, in a group setting

Own elaboration based on the ITSTE Tutoring Manual

It should be noted that the way in which the activities are carried out is left to the tutor's discretion, based on what is observed in the students. The work is supervised by the Coordination of each Syllabus (who is also a teacher and whose term of office is two years); in collaboration with the Institutional Coordination.

Already for the period January - July 2022, the TAP was implemented with the themes shown in Table 4.

Table 4 Lines of tutorial action, January - July 2022

| Ordinary Tutorials (Second Semester)		
Theme	**Hours allocated**	**Modality**
How my school works		
Framing session.	One to two hours.	Group.
School regulations: procedure and formalities.	Two hours.	Group or individual.
Academic Skills Development		
Process of adaptation to the virtual modality.	One hour.	Group
Accessible virtual tools.	One to two hours.	Group
Effective communication.	One hour.	Group
Desarrollo Humano		
Self-esteem: Who am I, what I want to improve about myself, what I need to leave behind in order to move forward.	One to two hours.	Group

Motivation: Who do I want to be tomorrow, How can I achieve it (personally and professionally).	One to two hours.	Group
Habits: Learning to manage one's time and resources.	One to two hours.	Group
Group activity for the detection of the needs of those being tutored.	Three hours	Group or individual.
Tema: Habilidades Profesionales		
Professional life plan: Emotional intelligence for good decision making.	One to two hours.	Group
Analysis of the profile of entry, graduation and career field.	One to two hours.	Group
Identification of intelligent skills as a strategy for entering the labour market.	One to two hours.	Group
Importance of the curriculum vitae as a business card.	One to two hours.	Group
Closing session.	One hour.	Group
Follow-up Tutorials (From the Third Semester onwards))		
Theme	**Semester**	**Hours allocated**
Academic Monitoring	Semester tutorials assigned to you.	Two hours per semester, in a group setting

Own elaboration based on the ITSTE Tutoring Manual.

Characterisation of the Online Tutorial Activity. Period 2021 - 2022

As indicated in the methodology, a 20-question questionnaire was applied through Google Forms, addressed to 62 second semester students from the five study plans, who successfully completed the tutorials during the periods August - December 2021 and January - July 2022. As shown in Figure 2, the majority of the tutoring sessions were conducted through the Google Meet platform (83%), which, according to the students, was more feasible due to the connection problems that could arise. Another important element to highlight is the number of sessions per week, as this depends on the academic load of each teacher-tutor; from which it was identified that most of them worked one hour of tutoring per week (75%). These data are shown in Figure 2.

Figure 2 Characterisation of the Online Tutorial Action
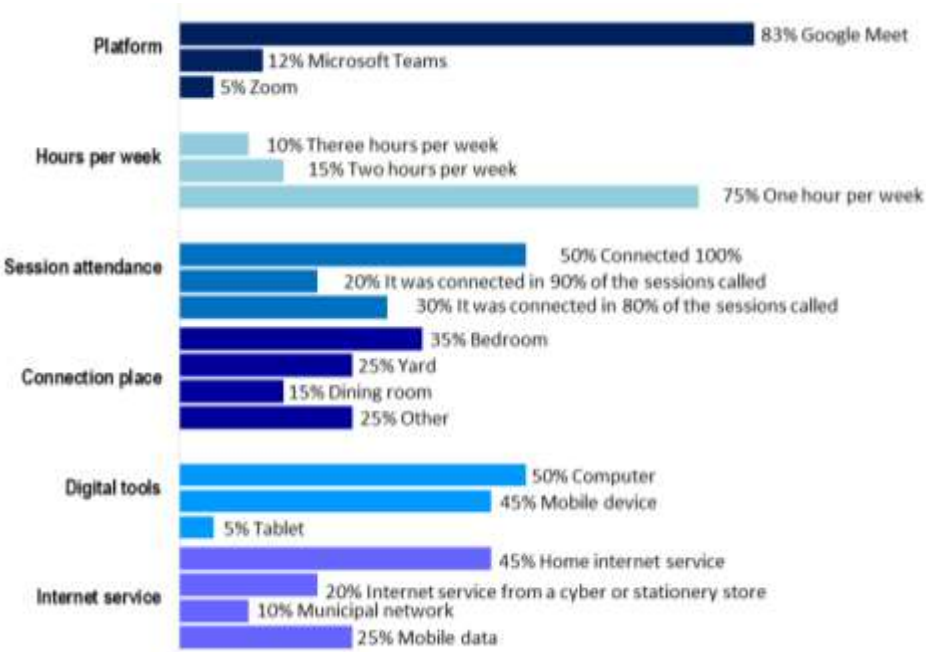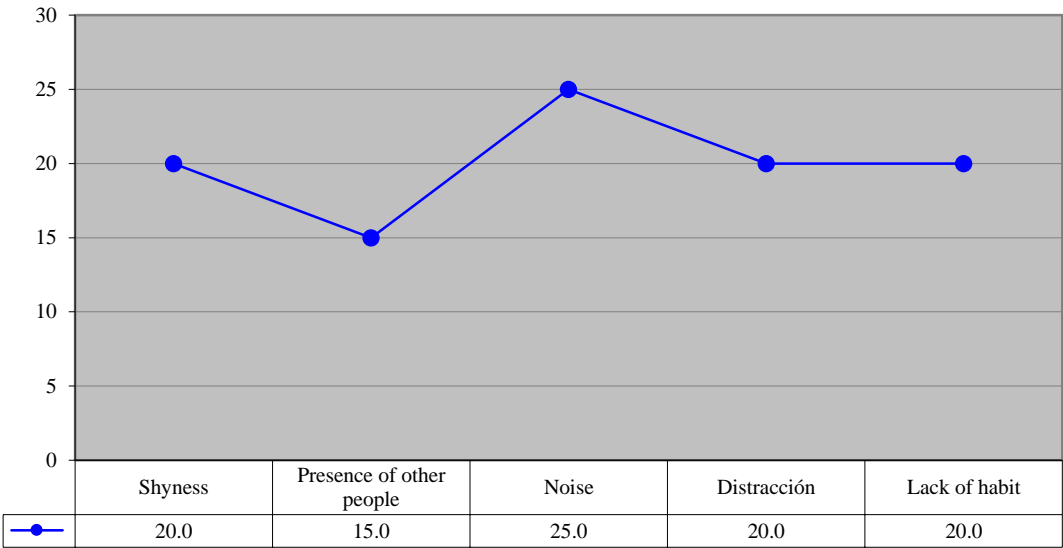

Source: Own Elaboration

Due to the fact that most of the student population lives in remote communities (mainly in the Mixteca Oaxaqueña region), they lack internet service or it is usually deficient, in addition to the lack of a mobile phone network or mobile data. This situation had repercussions on attendance at the tutoring sessions, since due to connection problems only half of the population studied was able to connect to 100 percent of the sessions convened and the rest were distributed between 90 and 80 percent attendance respectively; all of this also depended on the weather situation, as well as the timetable. In this sense, after the pandemic began, they were forced to contract satellite internet service, with costs ranging from $2300.00 to $3500.00 pesos, depending on the area.

Another important factor was the area or space available to them to connect via video calls, of which 35 per cent did so from their bedroom, 15 per cent in the dining room, living room or hallway, and in the last case they had to go out to the courtyard to have better reception of the service (25 per cent) or, if necessary, move to the centre of town to get the municipal network or purchase the service by the hour or fraction thereof in a cyber café or stationery shop (if there was one).

On the other hand, we inquired about the characteristics of the online tutorials, which highlighted that most of the students found it difficult to keep the camera on during the sessions, mainly due to the fact that communication between groups was very limited. Hence, factors such as: shyness (20%), external noises: horns from door-to-door sales of sundries, animal sounds, municipal and family members (25%); finally, they referred to other factors such as lack of habit, distraction and the presence of other people, as shown in Figure 3.

Figure 3 Non-verbal communication

	Shyness	Presence of other people	Noise	Distracción	Lack of habit
●—	20.0	15.0	25.0	20.0	20.0

Source: Own Elaboration

9. Conclusions

Mentoring has been considered a basic and fundamental component of the new student-centred methodology, a necessity for guiding and effectively monitoring autonomous work, either individually or in groups. However, there are still shortcomings and difficulties in the models to develop them, because although teachers identify the various types of tutoring, functions and guidelines, as well as peer tutoring within some educational systems, decisions are taken unilaterally by superiors, which often limits the incidence or impact of tutoring on the students themselves, and therefore on the objectives themselves. The main difficulties encountered in implementing new approaches to tutoring, providing it with content, are to be found in the lack of space, the excess of students that teachers have to deal with and the prevailing mentality in the institutional culture, which requires more teacher interaction. In this sense, it is important to consider the following questions in order to generate real changes in the way it works: is individual guidance necessary for all students; should tutoring be compulsory; what personal characteristics should a good tutor have; and how useful are information technologies?

By virtue of the results, and in accordance with the needs and challenges presented by the COVID - 19 pandemic, at the Instituto Tecnológico Superior de Teposcolula, with the application of some technological tools, we continued working on the teaching-learning processes, as well as on the tutoring model, because integrating ICT into these processes is not just a matter of knowing and using the tools; it is also necessary to be willing to integrate them into our academic activity as another didactic tool.

To recapitulate, among the findings presented here, it was found that living in municipalities without access to telephone and internet services; deficient internet services; as well as the lack of computer equipment or a mobile device; caused constant absences from virtual tutorials by some students; In other cases, students had to enter the labour market in order to earn an income and thus overcome this problem, which involved high costs.

Without a doubt, it is evident that this change of online work has modified the lives of many people, as well as adapting to include technology in the academic area, communication, virtual classes, to mention a few. It should be noted that the Instituto Tecnológico Superior de Teposcolula as an institution of higher education is the interface for the coverage of activities such as the training of empowered professionals, so from this it is necessary to work on the professionalization of the tutorial action, with theoretical and methodological foundations from the own work experiences of the tutors during the last years.

Based on the above and on what has been identified in this work, it is suggested to separate two types of processes for tutorial work: the first focused on the face-to-face modality and the second based on online work, as one of the mistakes was to use the same process in both modalities. Similarly, it is important to train the teaching staff who act as tutors, in order to provide them with new tools for the use and management of ICT, as well as for the approach and execution of the subjects in both modalities, as it is clear that not all subjects can be worked on in the same way. Finally, it is also important to unify an institutional platform for tutorial work.

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Chapter 9 Reflections and perspectives on the tutorial action in the Faculty of Chemical Engineering of the Autonomous University of Yucatan

Capítulo 9 Reflexiones y perspectivas de la acción tutorial en la Facultad de Ingeniería Química de la Universidad Autónoma de Yucatán

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Abstract

In this work, the perceptions of the tutorial action of a group of teachers-tutors committed to the Tutoring Program of the Faculty of Chemical Engineering of the Autonomous University of Yucatán (FIQ-UADY) are presented. These perceptions are the result of reflexions from the experiences acquired before and during the pandemic caused by COVID 19, a period where school activities, such as academic tutoring, had to migrate from face-to-face to online. In addition, taking in to account the areas of opportunity that were detected in the Tutoring Program, several actions are proposed to improve the integral education of students, as well as to support the teacher in the academic tutoring process.

Academic, perceptions, opportunity areas, online tutoring, pandemic

Resumen

En este trabajo, se presentan las percepciones de la acción tutorial de un grupo de docentes-tutores comprometidos con el Programa de Tutorías de la Facultad de Ingeniería Química de la Universidad Autónoma de Yucatán (FIQ-UADY), principalmente de las experiencias adquiridas antes y durante la pandemia a causa del COVID 19, período donde las actividades escolares, como la tutoría académica, migraron de la modalidad presencial a en línea. Además, a partir de las áreas de oportunidad detectadas en el análisis del Programa, se proponen varias acciones para coadyuvar a mejorar la Formación Integral del estudiantado, así como para apoyar al profesorado-docente en la tutoría académica.

Académico, percepciones, áreas de oportunidad, tutoría en línea, pandemia

1. Introduction

Academic tutoring emerged as an alternative to prevent, treat problems and improve students' terminal efficiency in Higher Education Institutions (Tejada Tayabas & Arias Galicia, 2003). The objective is to facilitate their adaptation to the school environment, improve their learning skills and facilitate their academic transition throughout their school career. Moreover, it is one of the essential functions of the teaching staff who, in their role as tutors, are responsible for guiding and accompanying students throughout their academic career, with at least two to three face-to-face sessions per semester.

As a result of the health contingency due to COVID-19 (WHO, 2019), teaching-learning activities, including academic tutoring, migrated from face-to-face to an emerging online and distance education, for which various technological resources had to be implemented (Ponce Ceballos et al., 2022). Each teacher-tutor took courses to obtain the necessary tools to be able to face the circumstances and challenges that arose, such as the management of platforms that would allow them to continue their tutoring sessions online. Therefore, given the contact and knowledge that the teaching staff has of the students' response to the Tutoring Programme, it makes them an excellent source of information to know the strengths and areas of opportunity of the tutorial action. In this way, this paper presents the analysis of the experiences in the tutorial accompaniment, acquired before and during the pandemic, of a group of teacher-tutors of the Faculty of Chemical Engineering of the Autonomous University of Yucatan, FIQ-UADY. It also provides suggestions on areas of opportunity to contribute to the improvement of the integral formation of the students, an essential part of the Educational Model of Integral Formation (MEFI) of the University.

2. Tutorial action at UADY

2.1 Conceptualisation of tutoring

The National Association of Universities and Institutions of Higher Education (ANUIES), at the service and strengthening of higher education, considers tutoring as the accompaniment and teaching support of individual character, based on a personalised attention by the teacher that favours a better understanding of the problems faced by each student, with regard to their adaptation to the university environment, to the individual conditions for an acceptable performance during their training and for the achievement of academic objectives that will allow them to face the commitments of their future professional practice (ANUIES, 2011).

In particular, for the UADY it is an intentional and systematic process of accompaniment, personal and academic guidance aimed at the student community during the school career (UADY, 2019), which, depending on the needs and resources of the departments, prioritises attention to students in the entry phase, which corresponds to the first four semesters, or when the student body is in a difficult situation in its trajectory (UADY, 2019).

2.2 UADY's Institutional Tutorial Programme

The Directorate General of Academic Development (DGDA), through the Comprehensive Student Support System (SAIE), has the Institutional Tutoring Programme, whose objective is to promote the comprehensive training of students, creating channels of communication, such as the Tutoring Committees of each University unit, to meet their needs more efficiently. Among its strengths are:

1. The Promotion Committee of the Institutional Tutoring Programme made up of the coordinators of the 15 Tutoring Committees, who are in charge of establishing the guidelines of the Programme and how they are applied, as well as scheduling the activities.
2. The Tutoring Committee, made up of teachers from each UADY department, who help supervise and carry out the programmed activities.
3. The majority of tutor-teachers have a cubicle assigned to them, where they can carry out face-to-face tutoring. Those who do not have a fixed space or who share a cubicle, can make use of spaces within the University, such as cubicles in the Campus libraries or a room within the unit, upon request.
4. Online support from the Institutional School Information and Control System (SICEI), which has a database that allows students to know their academic progress, as well as to register and follow up tutoring sessions.
5. Website (https://www.saie.uady.mx/tutorias/index.php) and Facebook page (https://www.facebook.com/programa.tutoria.uady).
6. Continuing Education activities, such as workshops and conferences, as well as the "Diploma in Planning and Development of Tutorial Action in the University", which consists of three modules: tutorial action in student accompaniment; support techniques in tutoring and tutorial support in the graduation phase.
7. Resources necessary to carry out tutoring in person or online.

The school trajectory is divided into the stages of induction, transition and graduation, and topics are addressed according to the needs and interests of the students-tutored, their progress and academic trajectory, Table 1. Tutoring can be in group or individual mode. In the former, each teacher-tutor interacts with a group of students-tutored with topics of interest that may affect their academic performance, permanence, academic career and successful graduation, in order to contribute to their comprehensive training; in this type of modality, it is possible to detect needs and cases that require individualised attention. In individual tutoring a student receives attention from a tutor in those situations related to their academic, professional and personal life, favouring their permanence, academic transit and successful graduation.(UADY, 2019)

Table 1 Mentoring topics considered for each stage of the school pathway

Induction (of 1° – 3° semester)	Transit (of 4° al 7°-8° semester)	Egress (of 7°-8° al 10° semester)
Issues arising from the transition from baccalaureate to bachelor's degree. Knowledge of the university environment and style. Your new role as a student. The role of the teacher in the Bachelor's Degree. Purpose of tutoring. Role of the teacher-tutor. Communication through virtual media. Free subject load. Follow-up of the academic pathway.	Drawing up a personal career specialisation plan, Non-curricular training related to their graduate profile. Mobility options (virtual) for your educational programme. Follow-up of the fulfilment of the total requirements of the study programme (social service, internships, languages, etc.). Options for graduation. Follow-up of the academic trajectory.	Transition to the world of work. Guidance for integration and job search. Construction of a professional career plan. Job interview. Preparation of a CV. Monitoring the fulfilment of all the requirements of the study programme (social service, internships, languages, etc.). Qualification. Postgraduate options.

Source of Consultation: (UADY, 2019)

3. Analysis of online tutoring in the UADY

3.1 Implementation of the online modality

The unforeseen health contingency generated by COVID-19 highlighted the lack of preparation for carrying out academic or tutorial activities at a distance, both for students and teachers in Mexican universities (Ponce Ceballos et al., 2022). Specifically, the implementation of the online tutoring modality at UADY was not immediate; first all staff, mainly academic staff, were trained to adapt the activities, which had been done in person, to online.

In August 2020, the Institutional Tutoring Programme implemented new virtual communication mechanisms in the student attention and follow-up process (Tutoría Virtual, 2020). The guidelines for online tutoring were:

1. Log in to the Institutional School Information and Control System (SICEI).
2. Review the list of students to be tutored.
3. To know the academic status of the assigned students, through the review of their school career and progress, as well as previous observations.
4. Convene them for the virtual sessions.

The virtual session could be through an institutional tool, preferably through the Microsoft Teams platform. Although others could be used, such as Zoom or Google Meet, taking into account the most convenient means of communication, date and time. The possibility of contacting the student via institutional email was left open, or in the event that both teachers and students gave their consent, it could be via mobile phone, WhatsApp messages, Facebook or Messenger.

Also, check the connection, audio and video in advance to avoid any setbacks in the tutorial. Start the sessions with a cordial greeting and always maintain eye contact with the student-tutor, make sure that the vocabulary used is friendly and respectful, and pay attention to them to make them feel good. Similarly, to detect if the person being tutored needed support, and if so, to channel them to the relevant area, be it psychological, medical or other services, always with openness and empathy. Before the end of the meeting, agree and schedule the next session. After having finished the virtual tutoring, ensure that the observations and agreements made in the tutoring session were recorded in the corresponding module of the SICEI.

3.2. Specific actions in the online modality carried out at the FIQ

Some UADY departments, depending on the characteristics of the student body's curriculum, suggested that other topics of interest be addressed. In the Faculty of Chemical Engineering of the UADY, through the Academic Secretariat, (Trejo Irigoyen, 2020) requested a survey of the problems faced by the student community during the pandemic, considering the following questions:

–   Through what electronic device did they connect to their classes? Was it by mobile phone, computer, Tablet, iPad, among others?
–   Did they have internet at home or on their mobile phone or did they have to move to another location to receive their classes?
–   Were they working to cover their personal expenses or support their families?
–   How were they doing in their subjects?

It was also requested that students who were lagging behind in school, or at imminent risk of dropping out of school, be followed up in a timely manner. To this end, it was proposed that a "Recovery Plan" be drawn up, establishing a programme where short and medium-term goals would be stated, so that both the teacher and the student could follow up on the actions in a timely manner. It was also requested to document the achievements of each student, as evidence of the fulfilment of the commitment made.

Specifically, the FIQ-UADY Tutoring Committee adapted the tutorial action to the online modality. The Tutoring Induction Workshop event, which was held every year in person for new students, was organised and redesigned to be held online through the Microsoft Teams platform. In addition, the topics covered were adapted to the situation that was being experienced, they were given general information about the university and were told about the competences that they should develop or improve during their stay at the university. They were also told that they should maintain a two-way communication between teacher-tutor ↔ student-tutored, i.e. that they should be active agents in the tutoring process, that their tutors should contact them for the first time via the institutional e-mail, that they should reply to them or even, if they have not received the e-mail, that they could also write to them. At the same time, they were invited to keep an eye on the tutoring weeks, which are published on the Faculty's website and social networks.

Another activity that was given in favour of the training of the faculty's teacher-tutors was the refresher course-workshop, which, thanks to the tools of Information and Communication Technologies (ICT), fostered an inter-institutional environment, because there were speakers from other departments of the UADY and the country, who, in addition to their knowledge and experiences, shared strategies that worked in their institution.

4. Results

The following is the result of the analysis of the experiences of the group of FIQ-UADY teachers in the accompaniment they provided to their students-tutored in the online modality. At the beginning of the COVID 19 pandemic, with the uncertainty of whether or not to return to the classroom, alternatives had to be sought to continue in contact with the students. Although the teacher-tutors already had basic knowledge of the use of the UADY Virtual Platform, they had to strengthen their technological skills through training and knowledge of the management and use of new ICTs, such as those offered by Microsoft 365. Thus, the University managed the delivery of courses for both teachers and students to facilitate the migration from face-to-face teaching and tutorials to the new online modality.

Among the collaborative work tools used, and which were relevant to maintain contact with students, was Microsoft Teams. In particular, the tutorial action was used to create virtual classrooms, which corresponds to "teams" in this application. Figure 1 shows an example of a tutorial group and Figure 2 shows the configuration of Teams channels for individual and group sessions.

Figure 1 Using a Teams team for tutoring sessions
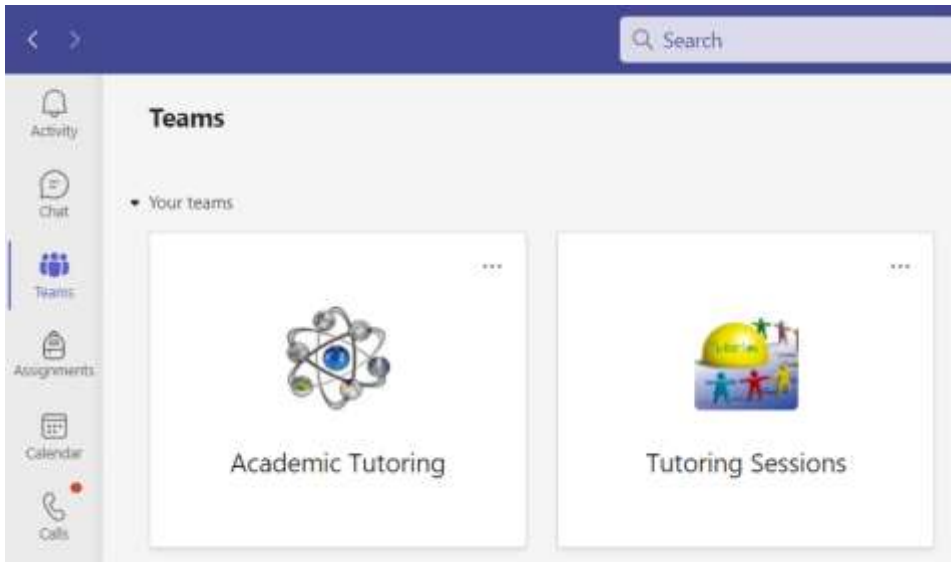
Source: Authors' own elaboration (2020)

In the general channel it was possible to publish information such as dates and times available for the sessions, share important announcements to the group of assigned tutors, for example, such as calls for enrolment grants or support for the pandemic, or other announcements covered by the Mentoring Programme. It was also possible to generate personalised spaces for each student-tutored (private channels) to attend to them individually or according to the support required.

Figure 2 Channel configuration for individual and group sessions
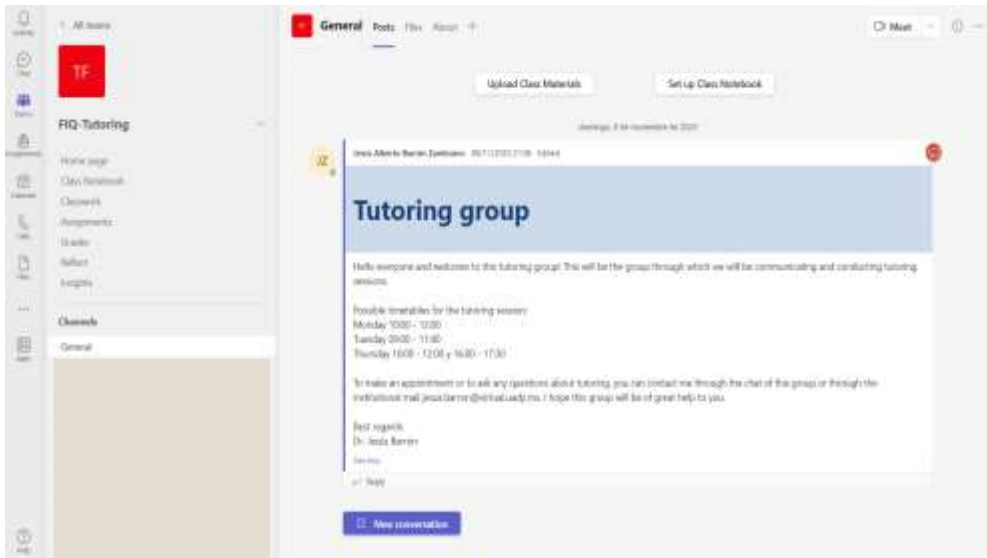
Source: Authors' own elaboration (2020)

After organising the virtual space and making the call to the students-tutored, the question arose: How did they respond to the online tutorials? Knowing that most of the students had a good command of ICTs and that they had at least one electronic device to communicate or take distance classes, it was expected that they would participate more in the tutoring programme. However, it was observed that, with the reactivation of online tutoring, there was no significant change in the number of students who normally took their tutorials face-to-face. What was even more striking was that the students who attended the online sessions were the same as those who attended the face-to-face sessions. Most of the people who attended the sessions have in common that they are committed, given that they have an ideal progress and high academic performance.

On the other hand, among the new students, greater proactivity was detected, as they were the ones who initiated contact with the tutor-teaching staff to schedule the sessions, and even after the pandemic or the return to the face-to-face modality, they have remained very active and attentive to the Tutoring Programme.

In the case of specific follow-up for students who were behind in school or at imminent risk of dropping out of their studies, the experience was not very satisfactory because no matter how many times they were contacted, by means such as institutional mail, through the UADY Virtual platform and through the Teams group that was opened for the tutorial session, there was little response, which could lead one to think that there is a zero degree of commitment to this type of activity.

In view of the above, we analysed what could have been the reasons for not taking or scheduling online tutorials. The first thing was to find out if they had an electronic device with internet access, otherwise how could they communicate? It was found that most of them had at least a mobile phone, tablet or computer. For those who stated that they did not have adequate equipment to carry out their academic activities, the staff of the Academic Secretariat of the Faculty sent them the printed teaching material provided by the teaching staff who taught them subjects. However, it was found that many students preferred to temporarily withdraw. It is clear that this may have had an impact on tutorial attendance, as they did not have the right conditions to continue interacting online, so they opted to interact only in necessary activities, those that would not be detrimental to their assessment. For those who left temporarily, it was perhaps forgetting about all other activities.

Another possible cause of abandonment of the tutoring sessions is that as the semester progresses, as it is a non-compulsory programme and there is no evident need or benefit, the students do not feel the commitment to attend the sessions. So, no matter how much availability the tutor-teachers show and the programme publicises the tutoring weeks, they do not take advantage of them. It would seem that they consider tutoring as a non-fundamental part of their academic training, and they do not take advantage of the sessions.

The low interest in attending tutorials could also be due to "thinking" that the tutor-teacher will immediately solve their doubts or problems in the session. Sometimes information is requested from the tutors about some of the other programmes that the Faculty has, such as scholarships, school control, psychological care services, mobility, among others; although the teacher-tutor guides them and, if necessary, channels them to those responsible for the programmes, he/she does not immediately solve their doubts or problems, which results in the students losing interest in attending the sessions and even ending up abandoning the Tutoring Programme. In addition, this could be influenced by the fact that their peers in more advanced semesters help them to resolve this type of doubt, so they no longer go to their tutors. If we add to this the fact that the institutional e-mail is the means of communication for contacting the student for the first time, not being used to using it means that he/she does not check it and does not find out that he/she has been called to a session.

On the other hand, during the COVID-19 pandemic, more situations of stress, disorientation and cases of anxiety were detected among the student-tutored students, due to the fact that their finances, health and emotional stability were affected. This could be due to the fact that they had to work and study at the same time; that they shared electronic devices and spaces with other members of the family; they often had no privacy to express themselves openly with the teacher-tutor. This put the teacher-tutor in a situation where he/she had to be prepared not only in the handling of ICT, but also emotionally to be able to help each student to cope with this new normality.

Therefore, the FIQ Tutoring Committee implemented support actions for the tutor-teaching staff, in order to minimise the new challenges and to attend to the students more effectively. A Training Course-Workshop was designed and given, in which they were introduced to the tools for tutoring in hybrid modality, dealing with the following topics:

1. General information about the Tutoring section in SICEI and virtual sessions in Microsoft Teams.
2. Basic psychological competences required for the practice of tutoring in the university, as well as some real cases.
3. Management of anxiety states to improve school performance.

So far, these tools and tips on psychological first aid have been very useful for the tutor-teachers, who stated that the topics covered were of great help to them. Knowing more about the programme allowed them to guide and accompany their student-teachers much better.

5. Conclusions

The reflections shared by the group of participating teacher-tutors from the Faculty of Chemical Engineering of the Autonomous University of Yucatan show the great challenge that had to be faced in order to migrate and implement, in a quick way, the whole tutoring system to the online modality. Their analysis helped to detect areas of opportunity in both face-to-face and online modalities.

In general, it is still evident that students in the first semesters show greater interest in the activities of the Tutoring Programme, but as time goes by and they advance in their school career, they stop attending, which could be mainly due to the fact that it is not compulsory for them to attend the tutorials for academic accompaniment, and for some students this does not present any advantage or additional contribution to their training, given that their peers in advanced levels guide and orient them. In contrast, the students who do attend regularly, coincide in having characteristics of high performance and ideal progress, which highlights a natural commitment in everything they do.

In particular, from each reflection, areas of opportunity were detected to improve the role of the teacher-tutor and motivate students to attend the Tutoring Programme.

5.1 Suggestions for improvement from the teacher-tutor

− Take advantage of the knowledge and experience acquired during the pandemic on the use of digital tools in tutorial action and continue its total or partial implementation with the return to face-to-face teaching.

–   Create a "Virtual space with a forum of experiences in tutorial action" where the tutor-teaching staff, heads of departments or services that contribute to the comprehensive training of students of the FIQ-UADY are added, so that they can share asynchronously, experiences of tutoring accompaniment, unsolved challenges, success stories, among others. Those who know about the subject or those who want to contribute ideas, contribute to its early solution.

–   Design a comprehensive guide for the tutor-teaching staff to attend to the needs detected or relevant according to the semester and degree that the students are studying, covering topics that contribute to their academic, administrative and comprehensive training, replacing the existing guides that cover only a few topics in the three stages of the school career: induction, transition and graduation.

–   Implement new strategies for the first contact between teacher-tutor and student-tutored. One of them could be during the week in which the Induction Course to the Faculty takes place, a dynamic "Icebreaker" could be included. In order to do this, the assignment of the teaching staff to the students to be tutored should be done beforehand, so that before the event starts, the lists are published in a visible place. Once at the event, invite them to meet and introduce themselves, even this dynamic can be adapted in a group and online way. This will help them to have their first group tutoring session and help students to start developing social and interpersonal competences with their peers and the tutor-teaching staff.

5.2 Actions that have an impact on student-tutors

–   Give talks, courses or workshops on psychological or pedagogical topics, such as stress management, learning techniques, among others, that promote the well-being and integral development of the student. In order to motivate the student body, one of the three tutoring sessions requested per semester could be counted as group tutoring.

–   Seek actions to motivate the students who are lagging behind and underperforming to attend their tutoring sessions. At the beginning, use a formal and strict mechanism, involving the Academic Secretary's Office, by sending an e-mail or formal reminder to invite them to attend a first tutoring session, emphasising that not only will they benefit, but also that they will be contributing to strengthening the Tutoring Programme, which is evaluated by external bodies. In the first session, it would already be the job of the tutor-teaching staff to motivate them to continue with the tutoring activities, based on a programme pre-established by the tutoring committee of the department.

With the analyses presented, it is concluded that it is necessary to continue promoting the training of the tutor-teachers and to implement new channels of communication with the tutored students, in collaboration and effective communication with the authorities of the Faculty and the University.

Finally, this analysis could be complemented with an investigation of the student-tutor perception of the functioning of the Tutoring Programme before and during the pandemic.

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Chapter 10 Huerto Universitario in house, online learning as a result of the pandemic

Capítulo 10 Huerto universitario en casa, como estrategia de aprendizaje a distancia en tiempos de pandemia

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Abstract

The Huertos Universitarios en Casa (HUCA) project integrated productive spaces into homes located in some of the eight regions of the State of Oaxaca. It was an institutional project of the Benito Juárez Autonomous University of Oaxaca 2021. It emanates from the initiative of the Academic Body of Design, Art and Criticism (CADAC), -UABJO- in collaboration with Renovando Horizontes A. C., In response to the published call On the official website of the university, 32 participants -university students and academics- were integrated, in the category of Social Servants, Professional Internships, Community Service or volunteering. The objective is to create a domestic vegetable garden for self-consumption in residential spaces. An agronomist trainer from the civil association led the efforts with a view to complying with Goal 12 of Global Social Responsibility: guarantee sustainable consumption and production modalities; doing more and better with less. The harvests were used for family self-consumption. In such a way that, the learning acquired strengthened the integral formation of the university students.

SARS-CoV-2, Online learning, Regions, Domestic, Global

Resumen

El proyecto Huertos Universitarios en Casa (HUCA) integró espacios productivos en viviendas ubicadas en algunas de las ocho regiones del estado de Oaxaca. Fue un proyecto institucional de la Universidad Autónoma Benito Juárez de Oaxaca 2021. Surge de la iniciativa del Cuerpo Académico de Diseño, Arte y Crítica (CADAC), -UABJO- en colaboración con Renovando Horizontes A. C., En respuesta a la convocatoria publicada en la página oficial de la universidad, se integraron 32 participantes -estudiantes y académicos universitarios-, en la categoría de Servidores Sociales, Prácticas Profesionales, Servicio Comunitario o voluntariado. El objetivo es crear un huerto doméstico para autoconsumo en espacios residenciales. Un ingeniero agrónomo capacitador de la asociación civil dirigió los esfuerzos con miras a cumplir con el Objetivo 12 de Responsabilidad Social Global: garantizar modalidades de consumo y producción sustentables; hacer más y mejor con menos. Las cosechas se destinaron al autoconsumo familiar. De tal manera que, los aprendizajes adquiridos fortalecieron la formación integral de los universitarios.

SARS-CoV-2, Aprendizaje en línea, Regiones, Doméstico, Global

1. Introduction

The Huertos Universitarios en Casa (HUCA) project emerged as a pedagogical initiative of the Academic Body of Design - Art and Criticism, attached to the Universidad Autónoma Benito Juárez de Oaxaca (UABJO). With the support of Renovando Horizontes A. C., a work scheme was designed in which different communities from the eight regions that make up the State of Oaxaca -Mexico- were involved. The institutional support made possible the incorporation of 32 university students, enrolled in the different schools and faculties of the UABJO. They were students from distant communities and some higher level academics. Therefore, for the development of the project, the natural and artificial characteristics of each place were considered. The federal policy "Stay at home" provided the conditions to undertake a learning process different from the traditional one. The challenge to overcome, therefore, was to involve distance learners in Social Responsibility projects.

To this end, logistical and pedagogical strategies were designed, from which the planning, organisation, management, coordination and control made it possible to consider that the garden represented a family business that favoured the solidarity economy. Based on the above, and through a collaboration agreement between the parties involved (Academic Body of Design, Art and Criticism - UABJO- and Renovando Horizontes A. C.) the intention of working together was consolidated. In such a way that, by means of a calendar of activities, knowledge related to: the elaboration of compost, types of sowing, sowing, general care and harvesting was periodically demonstrated.

The use of ICTs made the whole process feasible. The training, follow-up and consolidation of the learning of the university gardeners had an impact on the fulfilment of objective 12 of the Global Social Responsibility.

Unsustainable consumption produces pollution and degrades the environment. Therefore, it is necessary to act from the roots in order to opt for production systems that respect the environment and are sustainable. In addition, all people must choose sustainable lifestyles to contribute to caring for nature and slowing down climate change (United Nations, 2015).

Communication channels linked participating students and academics in real time. Digital platforms and social networks proved to be the means of support for the application of pedagogical tools.

It is important to highlight the investment aspect. In this respect, it is worth noting that each participant bore the costs incurred in the course of the project. Thus, as one of the consequences of the pandemic, the project could not be supported in terms of financial expenses. However, institutional support was focused on the donation of in-kind resources. The estimated costs were reflected as an almost null factor, as the project worked with reusable materials. The donation of objects such as: crates, seeds, compost, organic material, buckets, among others, simplified the difficulties that financing always represents. Thus, the most significant investment was concentrated on human resources and the digital media to be managed.

Certainly, the planning took into account the low investment of the project. Thus, the management of the knowledge exchanges was scheduled considering a six-month work plan. This period of time was organised on the basis of the germination and maturation process of the species planted. Using the inductive method, the university gardeners achieved successful sowings of carrots, radishes, tomatoes, lettuce, onions, parsley, aregula and pumpkin.

The initial goal of promoting the culture of cultivation was also achieved. The integration of the university students went beyond that. In some cases, one or more of the family members became involved in the planting process; they continue with their vegetable production to this day. In fact, several of these crops are currently part of the organic markets active in the central valleys of Oaxaca. Therefore, it can be affirmed that the integral formation of the university students involved acquired new values for their personal and professional development.

University Home Gardens Project (HUCA)

Learning related to the development of sustainability has been incorporated into the higher education process. To this end, specialised research groups have been set up. Likewise, the curricula have integrated subjects related to knowledge about strengthening the environment and correcting the deterioration of ecosystems.

The reforms that the federal government has requested with respect to the integral education of students, and the commitment that teachers must assume in this area, has promoted the implementation of programmes and projects with a focus on Social Responsibility in educational centres.

Therefore, full-time teachers are committed to promoting research proposals based on the Sustainable Development Goals, issued at the United Nations World Summit, held in 2015 (Corporate Social Responsibility and Sustainability, n.d.).

With the interest of getting involved in the fulfilment of the commitment that represents the application of educational social responsibility, and to enhance the knowledge of university students; the Academic Body of Design - Art and Criticism (CADAC) of the UABJO - to which the authors belong - configured a project that was related to productive housing. This meant converting homes into a state of self-production and self-consumption.

Social responsibility was understood as a collective exercise in which diverse actors, who possess related knowledge, must be involved. For this reason, one of the goals was to work on the project jointly with a group outside the institution of affiliation. It was for this reason that the Academic Body in Design, Art and Criticism, coinciding ideologically with the mission of Renovando Horizontes A.C., called for interaction.

... is a civil, non-profit organisation, with an interest in rescuing, reforesting and reactivating green areas, helping and training society in general to promote recycling, with a view to instilling the value of respect for the environment, making use of existing tools to improve the lives of everyone (Renovando Horizontes A. C., 2020).

The executive boards that were developed for the design of the Huertos Universitarios en Casa - HUCA- project, consolidated the idea of a joint exercise focused on the promotion of integral learning. Learning is integral when it guarantees in a balanced way the acquisition of knowledge, skills and attitudes for the development of thought, growth and personal self-affirmation, the establishment of relationships with others, with the environment, and their sense of life (Lafranceso, 2005). Therefore, the purpose was focused on the installation of vegetable gardens in the homes of participating students and teachers.

Distance education exposed its own complexities. So the remote education policy, implemented in the year 2021 due to pandemic effects; represented by the Secretary of Public Education, Delfina Gómez Álvarez, made it impossible to install a university garden in the UABJO facilities. So the organisations involved designed a work plan based on which digital resources would guarantee the integral learning of the gardeners. Taking advantage of the Google Meet platform, 32 university students were trained - see image 1 - located in the eight regions of the state of Oaxaca. In this way, integral learning was fostered, and skills and aptitudes based on multiple intelligences were exercised. Personal and group values were also highlighted, which favoured the development of the project. In such a way that: The developmental teaching-learning process makes possible in the subject the active and creative appropriation of culture, develops the constant self-improvement of their autonomy and self-determination in close relation to the processes of socialisation (Reinoso, 2002).

Method and strategy

The inductive methodology was applied during the theoretical-practical exercise of the university gardens. For this reason, a work schedule was determined, comprising six months of on-site work. Two stages were defined: composting (one month) and planting (five months, including the care and transplanting of the cultivated species). The evaluation process was applied through three instruments: the planting log, checklists and a portfolio of evidence. It was a set of estimates that reflected the knowledge acquired during the process, considering at all times that:

Developmental learning is that which guarantees in the individual the active and creative appropriation of culture, fostering the development of his or her constant self-improvement, autonomy and self-determination, in intimate connection with the necessary processes of socialisation, commitment and social responsibility (Castellanos, 2002).

The resources required were attached to the reuse of domestic waste objects and by donation. This represented a garden installation with simplified investments. In fact, objects such as: buckets, cans, pots and pans, pet bottles and plastic derivatives, tetrapak cartons, tyres, crates and tubs, among others, were used.

The means chosen were centred on the identification of domestic spaces of medium or relative use. Such as: patios, backyards, roof terraces, terraces, gardens, flower boxes, sheds, and areas to hang out. The specific characteristics of these areas had to be selected prioritising water supply, lighting and ventilation. Mainly because of the implications of these three elements for planting.

The adverse circumstances generated by the forced confinement caused by the SARS-CoV-2 virus were interpreted as ample areas of opportunity. As were the digital resources and social networks, which served as a support for linking participants. In congruence with the work schedule - June to December 2021, the training sessions were scheduled on Wednesdays of each week, from 10:00 to 12:00 hrs. The trainer, Agronomist Armando Sánchez Echeverría, together with his work team, showed through the Google meet and Facebook life platform the activities to be developed, thus guaranteeing the programmed goals.

The recognition of the living spaces by the university participants boosted their sense of belonging to their home. The effect of social cohesion was reproduced, since by identifying themselves as subjects with university values, they also recognised themselves as integral and integrating individuals, in such a way that:

...social cohesion is sought as a way to enhance the symbolic richness of multiculturalism, the promises of the information society and the dissemination of the democratic imaginary, in order to move towards systems capable of creating new mechanisms for social inclusion and citizen participation (United Nations, 2007).

The project exercise was concluded with significant results. Vegetable species were harvested for self-consumption. Some of the products exceeded the expected volumes and were integrated into an exchange product modality - in organic markets - for in-kind or monetary payment. The group has consolidated in the following months as they maintain permanent communication, and have been integrated into other trainings that have been offered through the State Government.

Teaching experiences during the project (HUCA)

The SARS-CoV-2 virus confinement restricted an initial proposal that had been designed as a field exercise. The aim was to store, sanitise and supply water to the toilets of five primary schools located in the central valleys of Oaxaca. The aim was to strengthen the technical learning of architecture students in advanced semesters. The project required a presence on site for at least three days, four hours a week. The means, resources and strategies involved direct interaction between the students - twenty-five, five per elementary school. However, the compulsory contingency made it impossible to access the school units, so the initial initiative was reconsidered.

Aware of the impossibility of implementing the water supply project, other possible actions were discussed with the members of Renovando Horizontes A.C., and the conclusion was reached to jointly design a project related to home gardens.

For this purpose, the technical and pedagogical limitations were evaluated. The opinions expressed seemed to focus, on the one hand, on the accessibility and reception quality of the network. On the other hand, and of greater concern, was the handling of the technical language of agronomy and its application in practical procedures. Thus, both were identified as areas of opportunity. To this end, solutions were identified that would favour the integral learning of the participants. Pedagogical strategies were proposed, such as the creation of didactic material through the formulation of instructional videos, with a duration of no more than three minutes.

Conceptual booklets, procedure manuals and a portfolio of evidence - see image 2 - were also developed and shared among the participating students and teachers through the WhatsApp group that was created specifically for the group's permanent communication.

The training required the installation of a pilot garden. For this purpose, an architectural space of relative use was identified in the home of one of the CADAC members. The rooftop area was selected for training purposes. The identification of domestic spaces for productive use is certainly not new. Juan Legarreta's worker's house (1932), in Mexico City, included a workshop among its components; thus, self-production is the result of a constant search for family sustenance.

The demonstration of the practices and techniques to be developed for the elaboration of compost, types of sowing, planting, general care and harvesting, were undertaken through the Google Meet platform. Every Wednesday, from 10:00 to 12:00 hrs, the university gardeners were able to follow the instructions of the Agronomist trainer in real time. It is worth noting that each exercise was successfully carried out with a great response from the participants. The resulting didactic evaluation was explained as a disinhibition event, which considerably benefited the pedagogical strategies applied. The personalised support between the trainer and the gardeners via Whatsapp reinforced the identity capacity in the group. The explicit evidence of learning in the evaluations, which showed the academic, personal and emotional growth of each participating university student. To a large extent, the comments focused on their capacity for resilience, creativity, group and family development.

Evaluation and results

With regard to the evaluation mechanisms, the two stages that make up the HUCA project were examined separately; however, being complementary, they are mutually dependent. Their development required continuous observation. For this reason, the following aspects were carefully observed: objectives and goals, physical, social and economic aspects, means and resources, skills and aptitudes, performance, creativity, previous knowledge, cost-benefit, management of procedures, time and resources, procedural rigour, among others.

It is worth mentioning that the evaluation instruments were carried out individually, as each garden had its own characteristics, i.e. each sowing had its own particular times and growth. The demonstration of results at the end of the evaluation could be shared among the gardeners involved. The digital media were of great support for the real-time presentation of the achievements and lessons learned.

Indeed, for the follow-up platform of the programmed activities, the following were created: an email (huertos.rs@gmail.com), WhatsApp group (RS Gardens) - see image 3 -, Drive (RS Gardens Portfolio), Google Meet depending on the email. The above was created with the intention of permanently possessing the evidence resulting from the executed process.

The University Home Gardens Project (HUCA), promoted by professors of the Academic Body Design - Art and Criticism (CADAC) of the UABJO, was presented to Dr. Eduardo Bautista Martínez (Rector of the university -2021-). The proposal was authorised for promotion to the UABJO university community. The participating students and professors (28 students -19 from the Faculty of Architecture- and four academics) were integrated.

With these first actions, the tasks proposed in the work calendar were started. The Q. A. Armando Sánchez Echeverría, member of the Asociación Renovando Horizontes, together with the representative of CADAC, Dr. Wendy M. Montes Ponce, agreed on the project that would aim to train students and professors in the formation of a culture of vegetable cultivation, strengthening the integral learning of the participating university community.

The agreement between the parties was consolidated through a joint collaboration agreement. It was a programme that considered a period of six months of joint work.

Thus, in the start-up stage, the participating university students received academic training based on the identification of the domestic space to be transformed. For this purpose, the following were considered: patios, backyards, terraces, terraces, corridors, balconies, utility rooms, among others. Each selected place was evaluated by the trainer, so that its characteristics were favourable in terms of ventilation, lighting and water supply. In addition, during the first week, the necessary means and resources for composting were requested.

The planting stage began in the fifth week with the use of the compost. Each participating university student freely selected the four species to be sown. The seeds were, as far as possible, native species due to their adaptability to the region. The first stage of sowing was carried out remotely, using the Google Meet platform, indicating the compatible species in a specific area of substrate.

Thus, it was convenient to plant species such as: pumpkins, tomatoes, coriander, parsley, carrots, radishes, onions and lettuce; given the lunar calendar, the growth and development of vegetables benefited. To this end, records of production, growth, quality and control of threats from common pests and diseases in plantations were kept. Photographic, film and audio evidence was also undertaken. This material was incorporated in due time and form in the means of documentary safekeeping (portfolio of evidence).

In accordance with the work schedule (see image 4), every Wednesday for six months from 10:00 to 12:00 hrs., the trainer and his team presented didactic materials through slides, tutorials, podcasts and images in digital format that strengthened the learning process of the installation and maintenance of a home garden.

At the end of the project stages, the fulfilment of the objectives, methods and achievements were evaluated internally and among the parties involved. The successful harvested products are related to leafy vegetables: lettuce, chard, coriander and parsley. -see picture 5-. The most vulnerable crops were: carrot, pumpkin, radish and tomato.

The following month, the results were presented to Rector Eduardo Bautista Martínez. He gave recognition to the professionals involved and requested the continuity of the project for the following year (2022), as part of the actions of the UABJO Responsibility Department.

The Huertos Universitarios en Casa project not only had institutional backing. The consolidation of joint work with the Asociación Civil Renovando Horizontes was achieved. The collaborative spirit that was achieved is considered relevant and necessary. The linking of architectural knowledge with the professional knowledge of agricultural chemists, as was the case, strengthens the learning domains of university students.

It should be noted that during the penultimate month of work, the academics of the Academic Body Design - Art and Criticism (CADAC) managed the opportunity to be trained in other programmes related to the installation of vegetable and medicinal gardens. Likewise, possibilities were identified for links with other professionals from: the Autonomous University of Tamaulipas, the Autonomous University of Guanajuato and the National Autonomous University of Mexico, who are undertaking projects on similar themes.

As a result of these contacts, the project was presented at national and international academic meetings, and an invitation was extended to continue the initiative of formulating a network of Huerta academics.

Conclusions and projectivity

In September, the Academic Body Design - Art and Criticism (CADAC) held the International Colloquium on Home Gardens, giving a voice to students and teachers who participated in the project undertaken in 2021, as well as integrating various Latin American academics who have developed similar projects in their schools.

Internally, the project will have a second implementation period this year. High School Number 7, of the Universidad Autónoma Benito Juárez de Oaxaca (UABJO), requested the signing of a Collaboration Agreement with the founders of the University Gardens at Home project, to integrate it as part of its integral learning activities into its curriculum. The agreement was signed on Monday 13 June. The project now has an on-site modality in the academic unit and is called LAYU Organic School Gardens.

The project's projectivity for the original project is creating the conditions to give continuity to the learning of the students and academics who participated, as the communication and contributions for the development of the culture of cultivation has not stopped almost a year after it was set up. Literature, tutorials and podcasts continue to be exchanged, as well as invitations to forums and academic and specialised meetings on the culture of planting and caring for vegetable gardens.

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(Report Submission Date: Month, Day, and Year); Accepted (Insert date of Acceptance: Use Only ECORFAN)

Instructions for Scientific, Technological and Innovation Publication

Abstract (In English, 150-200 words)

Text written in Times New Roman No.12, single space

Keywords (In English)

Indicate 3 keywords in Times New Roman and Bold No. 12

1 Introduction

Text in Times New Roman No.12, single space.

General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Chapter.

Development of headings and subheadings of the chapter with subsequent numbers

[Title No.12 in Times New Roman, single spaced and bold]

Products in development No.12 Times New Roman, single spaced.

Including graphs, figures and tables-Editable

In the Chapter content any graphic, table and figure should be editable formats that can change size, type and number of letter, for the purposes of edition, these must be high quality, not pixelated and should be noticeable even reducing image scale.

[Indicating the title at the bottom with No.10 and Times New Roman Bold]

Table 1.1 Title

Variable	Descripción	Valor
V_V	Volumen de Venta	20000
P_V	Postura de venta	490.61
V_C	Volumen de Compra	20000
P_c	Postura de Compra	485.39
P^{Uh}	Precio último Hecho	491.61
V_o	Volumen Operado	1241979
P_u	Precio/Utilidad	0
P^{VL}	Precio/Valor Libro	0
U_a	Utilidad p/Acción	0
V^{La}	Valor Libro p/Acción	0

Source (in italics)
Should not be images-everything must be editable.

Figure 1.1 Title
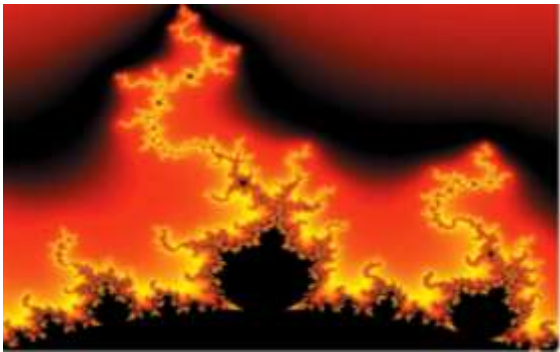
Source (in italics)

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Graphic 1.1 Title
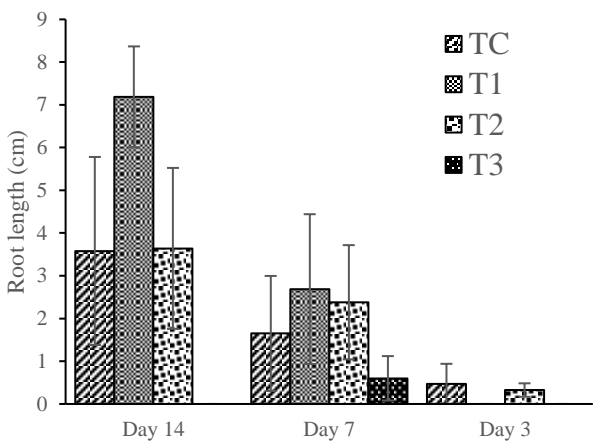
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Each chapter shall present separately in **3 folders**: a) Figures, b) Charts and c) Tables in .JPG format, indicating the number and sequential Bold Title.

For the use of equations, noted as follows:

$$\int_{lim^{-1}}^{lim^1} = \int \frac{lim^1}{lim^{-1}} = \left[\frac{1\,(-1)}{lim}\right]^2 = \frac{(0)^2}{lim} = \sqrt{lim} = 0 = 0 \rightarrow \propto \tag{1}$$

Must be editable and number aligned on the right side.

Methodology

Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

Results

The results shall be by section of the Chapter.

Annexes

Tables and adequate sources

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Thanks

Indicate if they were financed by any institution, University or company.

Conclusions

Explain clearly the results and possibilities of improvement.

References

Use APA system. Should not be numbered, nor with bullets, however if necessary numbering will be because reference or mention is made somewhere in the Chapter.

Use Roman Alphabet, all references you have used must be in the Roman Alphabet, even if you have quoted an Chapter, book in any of the official languages of the United Nations (English, French, German, Chinese, Russian, Portuguese, Italian, Spanish, Arabic), you must write the reference in Roman script and not in any of the official languages.

Technical Specifications

Each chapter must submit your dates into a Word document (.docx):

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Chapter title
Abstract
Keywords

Proceedings sections, for example:

1. Introduction
2. Description of the method
3. Analysis from the regression demand curve
4. Results
5. Thanks
6. Conclusions
7. References

Author Name (s)
Email Correspondence to Author
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