

**UNIVERSITY OF EL SALVADOR  
SCHOOL OF ARTS AND SCIENCES  
FOREIGN LANGUAGE DEPARTMENT**



“Strategies Applied by Professors that Work with Students with Auditory Disability in the School of Art and Sciences, and the School of Engineering and Architecture in the Central Campus of the University of El Salvador, Semester I-2018.”

“Estrategias aplicadas por profesores que trabajan con estudiantes con discapacidad auditiva en la Facultad de Ciencias y Humanidades, y la Facultad de Ingeniería y Arquitectura durante el primer ciclo de 2018 en el campus Central de la Universidad de El Salvador”

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## INTRODUCTION

The present research project is focused on the strategies applied by professors that work with students with auditory disability in the School of Arts and Sciences, and the School of Engineering and Architecture in the Central Campus of the University of El Salvador, semester I-2018. Since the impaired-ear students is a population who is growing the curricula require adaptation according to the needs of students with auditory disability to support them during their teaching-learning process.

The University of El Salvador approved the Inclusive-Education Policy for Students with Disabilities of the University of El Salvador in the year 2013 in accordance with the University Superior Council. The application of this policy intends to guarantee the access and support during the development of Majors of these students at the University providing institutional support and orientation to establish a learning environment under the same conditions to all the students to avoid discrimination or isolation of this population. So this research describes how the curriculum of the School of Arts and Sciences, and the School of Engineering and Architecture have been adapted and how not only professors but also interpreters, classmates and parents work together in the learning process of students with auditory disability.

To have an insight into the study, this graduation work includes the following sections: Chapter I, the statement of the problem presents a brief description of the problematic situation, the objectives of study and the justification that indicates the importance of the research project. Chapter II, the theoretical framework contains all the corresponding literature including background information of deaf students, explains what is hearing impairment and its degrees, and shows the importance to adapt the curricula.



Chapter III, the research design presents the methodology used to collect data to be analyzed. Particularly, this proposal will be supported by information obtained through the use of three instruments: one class observation guide, one questionnaire, and two interviews, which will be analyzed and presented in form of essay and graphic results. Chapter IV, data analysis and interpretation shows the results obtained on the three instruments with their analysis and determines if the objectives were accomplished or not. Chapter V summarizes the conclusions reached by the researchers at the end of the study.

Chapter VI, the research team presents recommendations addressed to the authorities, professors and students with auditory disability. Chapter VII includes a list of references used to develop and support this research work. Finally, chapter VIII includes all the instruments and a transcript of the interview addressed to Vice- Dean of the School of Arts and Sciences.

## **I. STATEMENT OF THE PROBLEM**

### **1.1 Problematic Situation**

Students with auditory disability from the School of Arts and Sciences, and the School of Engineering and Architecture in the Central Campus of the University of El Salvador face different limitations in their learning process due to the lack of appropriate strategies and methodologies that need to be included in the curriculum of the University.

Then, the curriculum applied by professors, who have classes where there are students with auditory disability, requires adaptation according to the needs of students with auditory disability.

This situation can be supported by Rosario Villalta who is the Coordinator of the Assistance Office for Students with Disabilities of the University of El Salvador and expressed: "Professors have participated in certification programs in the past, in regard to inclusive classroom environment and about disabilities in general, but they have not emphasized on strategical formation, changes or special adaptation in the curriculum to teach and help students with auditory disabilities in their teaching-learning process".

The exercise of teaching is a complex process, even more if it is carried out with students with special educational needs. It requires professors who possess and master special qualities and attitudes in front of their students to organize, prepare and present appropriate teaching material for the attention of educational needs.

From this perspective, it is necessary to assess whether professors who are working at the University of El Salvador have professional training that facilitates the integration of students with auditory disability, since the fact of having little or no knowledge of sign language becomes a difficulty to adequately develop the teaching-learning process.

In order to have a diagnosis about the academic situation in which the students are learning, three interviews were done to Rosario Villalta, Ruby Ramos and Andrea Fabiola in which they pointed out and emphasized on the need of special attention from the authorities of the institution on the curriculum adaptation, and strategies applied by professors in classes with students with auditory disability. Rosario Villalta, Coordinator of the Assistance Office for Students with Disabilities of the University of El Salvador expressed:

“Professors have participated in certification programs in the past, in regard to inclusive classroom environment and about disabilities in general, but they have not emphasized on strategical formation, changes or special adaptation in the curriculum to teach and help students with auditory disabilities in their teaching-learning process”.

This information can be corroborated with the details gotten with the second interview with an interpreter for a second-year deaf student in the Art department, Ruby Ramos; she mentioned:

“Students with auditory disability really need special attention from the professors. Unfortunately, they do not have any kind of special training, preparation or strategical formation in this field to interact with those students, they are not even informed by the authorities of the department they work with. They will have to work with a student with auditory disability until they find out the first day of class. There is no curriculum adaptation of the content for classes which students with auditory disability attend, there are no special strategies applied.”

Based on the last two statements, there is still missing the accomplishment of some important constitutional based that belong to the policy of inclusion for people with disability, as it is mentioned in article 4: "The State will promote full access to the education system for the population as a strategy for the democratization of education. This strategy will include the development of an adequate physical infrastructure, the provision of competent personnel and the relevant curricular instruments"<sup>1</sup>.

At the same time, The legal relationship on education for people with disabilities is found in article 34, second paragraph, and it states that "the education of people with special educational needs will be offered in specialized institutions and in regular educational centers, according to the needs of the student, with the attention of a specialist or trained professors"<sup>2</sup>, which is something opposite to what really happens inside of the classroom of the University of El Salvador according to the experience or perspective of the last two statements made by Rosario Villalta, Coordinator of the Assistance Office for Students with Disabilities of the University.

However, it is important to highlight that both interviewed professionals expressed that the University of El Salvador guarantees and makes available a team of interpreters to assist this population. The interpreters work along with professors and students with auditory disability to help and transmit the information of each content, they are the channel not just within the time the professor explains in front of the classroom; they also help the students to solve doubts and answer questions. One of the problems that interpreters have is that they may have not specialized in one specific academic area. Students with auditory disability really need special attention, they not only need inter preters' assistance, but they require some specialized strategies, so the content can be presented and particularly adapted for them in the classroom.

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<sup>1</sup> General Education Law, 1996

<sup>2</sup> General Education Law, 1996

To confirm the facts reported from interviewed professionals, here it is an expressed concern from Andrea Fabiola, a student with auditory disability from the Department of Arts.

“When the professors present a video or explain something on the board is really hard for me to pay attention to what my interpreter is “interpreting” for me and in what is happening in the screen or on the board, sometimes I get confused, because it is hard for me to gather all the information at the same time. I think it is important that professors know about some strategical teaching-learning adaptation for presenting the contents, they should receive training, a strategical formation to adapt the class, and be more informed about it”.

Based on the previous diagnostic, this research work will answer the following main question:

- Which are the curriculum adaptations and strategies that professors at the School of Arts and Sciences and School of Engineering and Architecture apply in the classes and during the teaching process of students with auditory disability?

Supporting the main research question the researchers will be discussing the coming subsidiary questions as well:

1. Which is the professional formation about methodological strategies that professors of the School of Arts and Sciences and the School of Engineering and Architecture receive to teach students with auditory disability?
2. Which are the learning strategies that students with auditory disability from the School of Arts and Sciences and the School of Engineering and Architecture apply to improve their understanding of the contents?

3. Which are the strategies that interpreters of sign language at the School of Arts and Sciences and the School of Engineering and Architecture apply to help those students with auditory disability?
4. Which are the strategies that classmates at the School of Arts and Sciences and the School of Engineering and Architecture implement to help those students with auditory disability?

## **1.2 Research problem scope and limits**

### SCOPES

The research proposed the following scopes:

- To analyze the reality of the University of El Salvador regarding the curriculum adaptations, which are available to assist students with auditory disabilities.
- To identify the strategies implemented by teachers, classmates, interpreters and parents to support the learning process of students with auditory disability.
- To prepare and propose to the authorities of the University of El Salvador strategies that improve and strengthen the teaching - learning process of the students with auditory disability.

### LIMITS

- The limitations that researchers could find are:
- The availability regarding the time of the students with auditory disability of the University of El Salvador, which are the object of study of the research.
- The accessibility and collaboration of professors and interpreters who are currently working with students with auditory disabilities.

## **1.3 Objectives**

### 1.3.1 General Objective:

- To describe the curriculum adaptation and strategies applied by professors who have classes where there are students with auditory disability at the School of Arts and Sciences and the School of Engineering and Architecture of the University of El Salvador.

### 1.3.2 Specific Objectives:

- To identify the methodological strategies that professors at the School of Arts and Sciences and the School of Engineering and Architecture of the Central Campus of the University of El Salvador apply during the teaching process of the classes where there are students with auditory disability.
- To discover the strategies that students with auditory disability from the School of Arts and Sciences and the School of Engineering and Architecture of the Central Campus of the University of El Salvador make use in their learning process
- To expose the numerous strategies that classmates implement in and out of the classroom that help them to communicate with students with auditory disability in their learning process.
- To identify the strategies that interpreters of sign language have learnt to support the learning process of the students with auditory disability.

## **1.4 Research Justification**

This research is about identifying the different strategies that professors, interpreters, classmates and even the students with auditory disabilities apply during and after class time, since this allows to know about the facilities and limitations that they face during the process of learning.

The reason why this research will be done is to include the ear impaired population into the society, beginning with the percentage located within the central campus of the University of El Salvador. The research team believes this thematic has not been having the right approach from government or social groups, being such an important population, even though they struggle with auditory disability, they belong as well to our society and country and help the development of the same.

Based on this, some alternatives and methodological strategies that will benefit students with auditory disability will be proposed in their integration in the different majors offered by the University of El Salvador, since at present a high percentage of income of these students is being given. This situation has generated difficulty for these students and the professors to successfully develop the teaching-learning process, since most of the professors are not prepared to be able to attend this student population, so it's necessary to train them in the area of special education.

The main objective of this research is to describe the curriculum adaptations and strategies that are being applied by professors who work with students with auditory disability in the School of Arts and Sciences and the School of Engineering and Architecture in the University of El Salvador.

It is important to know that there is a special educational need for these students, which requires professors to make an effort to adapt strategies and methodologies to improve the integration process and therefore the teaching-learning process of students with auditory disability, thus it can be developed the focus on attention to the diversity of the students, avoiding the attrition of the population with auditory disability.



## **II. THEORETICAL FRAMEWORK**

### **2.1 Antecedents**

The ear is the sense that some specialists consider as one of the most important since through it speech is acquired. The human being from an early age has contact with his parents and even if he does not understand the meaning of what he is speaking, he still hears the words and phrases. Afterwards, the child begins to babble some nonsense words and as he grows he comes to the understanding of what he talks until the total development of the spoken language. But how was he acquiring that language? Simply with the mere fact of hearing since childhood, first with his parents and family, later in school from kindergarten to primary. Here is when he has a better development of verbal language, and in some way, he begins to express his ideas, as well as to communicate with others so that later on he begins with a better intellectual development with higher teaching degrees. [Flores et al., 1991] Through language we acquire knowledge of the world around us, and our understanding of it and, of course, intellectual development, but what about those children who cannot hear well? Well, it is a difficult problem to carry because not only do parents have to be willing to help their child to develop well in the surrounding environment, but also doctors and future teachers specialized in language therapy. Considering that they have to see directly or indirectly and that they have to know the child, the young and later the adult who suffers from auditory perception, this problem that the researchers have called hearing loss.

### **History of deaf education**

During previous years, the deaf had been the subject of controversy about the type of education that they should receive or, worse, be ignored and deprived of their rights as human beings all because they cannot hear. Fortunately, human thinking is evolving and changing the concept of life of every living being, the deaf also receives greater consideration and great men are interested in helping them, looking for ways to be considered as rational beings and with the right to education and respect as people who only have the problem of not having a language to express their ideas.

The following lines describe the evolution of education and the treatment of the deaf person.

- In ancient times in Athens, Rome and Sparta, the children who were born deformed were taken to a secret place where they were drowned or left to die, that happened to deaf person, they were dropped from the precipices. In the Middle Ages, although they could be assimilated to the figure of the "madman of the people", their integration was ensured by the adoption of deaf people under the roof of certain religious congregations that had a vow of silence. But even at that time they were considered as monsters.
- Aristotle (384-322 a.C.) and later Pliny the Elder (23-79) suspect a certain relationship between congenital deafness and muteness but did not detail anything about it; however, Aristotle believed that the deaf-mute by not articulating any word nor understand from others not can be educated and is unable to receive instruction.
- Celso (s. I a. C.) affirms that there is no absolute deafness and that the deaf-mute can be initiated in a certain degree of hearing by speaking to him in a certain way above the head.
- In the Middle Ages, they had the idea that deafness and muteness depended on an organic abnormality, so the deaf-mute was not educable. Until the fifteenth century it was labeled an irrational being, without rights, or duties of any kind.
- At the end of the sixteenth century a doctor named Girolamo Cardano (1501-1578) stated that: "the deaf-mute can listen through reading and speaking through writing ". He said that deaf people could be understand by written combinations of symbols associated with the things to which they referred.
- In the Renaissance the teaching is primarily oral in Spain, but it is transformed into mime, in imitation of the abbe L'Epée, because it is easier and more successful. However, is not satisfactory, if the deaf person does not speak he cannot be considered sane by what emerges the mixed method (signs with oral).

- The first book of signs for deaf people that contained the manual alphabet was published in 1620 by Juan Pablo de Bonet in which Pedro Ponce de León appears Benedictine monk considered as the first educator of the deaf person, since he converted the monastery of San Salvador de Oña in 1530 in the first school for deaf people. He began teaching Latin and Castilian to his deaf brother so that he could be ordained as a priest. Many nobles attended there since their children, being deaf, could not inherit their parents if they did not know how to read and write, they sent them there so that they could inherit their patrimony. Those Benedictine monks had a vote of silence, but they communicated with each other in sign language.
- The Italian law of November 20, 1913 defines the deaf-mute "as a true sensory abnormal and false abnormal psychic, insofar as it is educable."
- In 1925 Herlin created the global method that takes into account child psychology and the normal development of the child. [Perelló et al., 1978]

### **Historical background of education for the deaf in El Salvador.**

On August 8, 1963, in El Salvador, Mrs. Elena Marticorena de Arévalo, who took the first steps in the education and habilitation of the deaf, became the first teacher of the deaf in the country, and in 1952, founded the first school for the deaf that registers in our history.

The Hearing and Language Center began its work as a dependency of the Salvadoran Institute for Invalid Rehabilitation (ISRI), its official opening was until 1964, located in a Pavilion of the nursing home "Sara Zaldívar". Subsequently, other similar centers were founded in the east and west of the country. (Taken verbatim from <http://sordosconvos.blogspot.com>). With the creation of this center, an attempt was made to solve the various obstacles faced by the deaf in terms of education, habilitation and social position.

The education of deaf people in El Salvador, at the time the "Tomás Regalado González" Hearing and Language Center was created in San Salvador, being the only institution that for a long time offered almost exclusively, habilitation and rehabilitation services for people, with hearing, voice and language problems.

With the passing of time, educational services for the deaf have been extended, and nowadays coverage is provided in pre-school, basic education, vocational workshops and the beginning of secondary education. The education of deaf people in El Salvador has been the same as in other countries a controversial issue in the past, the attention given 41 years ago was based mainly on oral and auditory rehabilitation, thus neglecting the educational aspect, which brought as a consequence the marginalization of the deaf population because they cannot read or write. This current was evolving, so that the medical approach that prevailed in the attention of deaf people was replaced by a pedagogical approach, with its different philosophical currents, which give rise to a variety of methods, for teaching the deaf and that are currently used, within official and private schools that serve this population.

In the year of 1979, the educational work began with deaf children in the department of San Miguel, later in the year of 1982, the hearing and language school was inaugurated, in this same department, being this the first school for the deaf in the country dependent on the Ministry of Education.

Extension of coverage, beginning in 1990 with the opening of twenty-eight sections for the deaf in special schools, serving three hundred and fifty students. Opening of the third cycle in 1997, at the Tejada Llerena School, which started in the seventh grade with a population of fifteen students.

In 1998, the gradual relocation of the population of the "Tomás Regalado González" Language and Hearing Center began, from the fourth grade to the Tejada Llerena School and the opening of the first School for the Deaf "Licda. Griselda Zeledón ", as a dependency of the Ministry of Education in the San Salvador area, with an initial population of one hundred and ten students.

In 1999, the Santa Ana School for the Deaf was opened, with a population of sixty students. In the year 2000, the opening of the Sonsonate School for the Deaf was opened, with a population of fifty students, and two Literacy Circles for deaf people, San Salvador and Santa Ana, respectively, were opened, with a population of fifty students each.

The third cycle of basic education is also started at the School for the Deaf "Licda. Griselda Zeledón ". In the same year the doors are opened to deaf people, so that they attend secondary education, with the implementation of the distance Baccalaureate modality, serving a population of ten deaf students.

For the year 2002, there was the opening of the first year of Bachillerato in the School for the Deaf "Licda. Griselda Zeledón ", with a population of twelve students. Progress has been made in the education of the deaf, many of them are the result of the efforts of people who have invested time to fight to improve the situation of deaf people in the educational field, among the achievements are:

- Recognition of the Salvadoran Sign Language (LESSA), as the mother tongue of the deaf population of El Salvador, by the Ministry of Education.
- Recognition of the Salvadoran Sign Language, to transmit the information and programmatic contents in the official schools for the deaf.
- Recognition of the deaf population as a linguistic minority, which possesses as many capacities, abilities and skills as the rest of the population.
- Foundation of the first school for the deaf in San Salvador, which serves up to ninth grade.
- Opening of the baccalaureate for the deaf in San Salvador.

In 2010, the Government of El Salvador and the Authorities of the Ministry of Education (MINED) introduced the Inclusive Education Policy which consisted in the integration of people that had never had access to education and one of the commitment agreements was including students with different disabilities. In addition, this policy pursues strategically the creation of an educational model of wide participation, which allows to improve the pedagogical practices and the curricular content of the system, in order to be able to respond to everyone with quality, efficiency, and equity.

In 2013 The Inclusive Education Policy for Students with Disabilities of the University of El Salvador was approved. The Inclusive policy promotes the rights of people with disabilities so that it guarantees them the access, retention and graduation of public higher education; and adaptation, revision and relevance of the regulatory and institutional framework: The Higher Education Act and its regulations, the development of an adequate physical infrastructure, the provision of competent personnel and the relevant curricular instruments.

## **2.2 Theoretical bases**

According to the World Health Organization (n.d), disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action. There are many types of disabilities, such as those that affect a person's vision, movement, learning, communicating, hearing and mental health; although, this research project will be focused in auditory Disability, also known as hearing impairment, hearing loss or auditory processing disorder (APD).

The **Individuals with Disabilities Education Act (IDEA)** considers that It is helpful to know that, while the terms "hearing impairment" and "hearing loss" are often used to describe a wide range of hearing losses, including deafness, IDEA actually defines the two terms separately, as follows:

**Hearing impairment** is defined as an impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance.

**Deafness** is defined as a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification." The phrase "with or without amplification" is significant as it indicates that a hearing aid will not provide sufficient accommodation so that the student can succeed in the classroom.

Thus, knowing the definition of deafness is necessary to understand what sort of disabilities are considered hearing impairments. A hearing loss above 90 decibels is generally considered deafness, which means that a hearing loss below 90 decibels is classified as a hearing impairment. Hence, deafness prevents an individual from receiving sound in all or most of its forms; on the other hands a student with a hearing loss can generally respond to auditory stimuli, including speech. The distinction between deaf and hearing impairment is indispensable for diagnosis; therefore, the ability to learn depends in large on the degree of hearing impairment.

### **Types of auditory disability**

Before describing the types of auditory disability, a person may have, it's useful to know that sound is measured by:

- its loudness or intensity (measured in units called *decibels*, dB); and
- its frequency or pitch (measured in units called *hertz*, Hz).

The Better Hearing Institute (BHI) explains that hearing impairment is more common than most people realize, and it can affect anyone at any time in their life. Also, BHI describes the different types of hearing impairment:

#### Sensorineural Hearing Loss

The vast majority of people with hearing loss have sensorineural hearing loss. This occurs when there is a problem with the sensory (hair cells) and/or neural structures (nerves) in the inner ear (cochlea). Most often, sensorineural hearing loss involves damage to the tiny hair cells that are activated by sound waves to vibrate and release chemical messengers that stimulate the auditory nerve. A sensorineural hearing loss not only reduces the intensity of sound, but sensorineural hearing loss also can distort what is heard, even when the sounds are loud enough.

Some of the potential causes of sensorineural hearing loss include:

- Exposure to loud noise
- Aging
- Medicines that damage the ear (ototoxic)
- Illnesses, such as meningitis, measles and certain autoimmune disorders, among others
- Genetics, that is, hearing loss runs in the family
- Trauma to the head
- Structural malformation of the inner ear.

### Conductive Hearing Loss

Conductive hearing loss is mechanical in nature. That means that something, a physical condition or disease, is stopping sound from being conducted from the outer or middle ear to the inner ear, where nerves are stimulated to carry sound to the brain. Potential causes of conductive hearing loss include:

- Fluid in the middle ear due to colds or allergies
- Fluid in the middle ear due to poor eustachian tube function (The eustachian tube drains fluid from the middle ear and ventilates it to regulate air pressure there.)
- Ear infection
- A foreign object lodged in the ear
- A ruptured eardrum (also called a perforated eardrum or a tympanic membrane perforation), which means there is a tear in the membrane that separates the outer ear from the middle ear
- Structural malformation of parts of the ear
- Trauma to the ear
- In rare cases, tumors



### Mixed Hearing Loss

A mixed hearing loss means there is a sensorineural hearing loss along with a conductive hearing loss component. In addition to some irreversible hearing loss caused by a problem with the inner ear, there also is an issue with the outer or middle ear, which makes the hearing loss worse.

### Presbycusis

Presbycusis simply means age-related hearing loss. Typically, presbycusis comes on gradually and equally in both ears. In most cases, it's the result of changes in the ear that happen as people get older.

### Tinnitus

Often called “ringing in the ears,” tinnitus is the perception of a sound in a person’s ears or head that has no external source. Many people with tinnitus experience a ringing, humming, buzzing, or chirping sound. Others even perceive singing or music. Experts believe that neural hyperactivity—that is, overstimulation of the nerves—leads to this perception of sound.

### **Degree of auditory disability**

According to the Better Hearing Institute (BHI) the degree of auditory disability can range from “mild” to “profound”; generally, the more severe the hearing loss, the harder it is for the person to hear. Also, BHI provides a brief explanation of the degrees of hearing loss:

### Mild

“Mild” is the most common and under-diagnosed degree of hearing loss. People with mild hearing loss usually can hear sounds louder than 40 decibels but may have some difficulty hearing sounds below 40 decibels. That means that someone with mild hearing loss may have minimal or no issues communicating in quiet, in one-on-one settings, or with only a couple of people. But they tend to have difficulty hearing softer environmental sounds as well as some conversations, especially in noisier environments, at a distance, in larger-group settings, or over the phone.

### Moderate

People with moderate hearing loss have trouble hearing sounds below 40 decibels, but also many sounds in the 41 to 60 decibels range. Sounds in the 41 to 60 decibels range include those heard in a quiet office, for example. Normal conversational speech averages between 50 and 65 decibels.

### Severe

People with severe hearing loss have difficulty hearing most sounds below 61 decibels and many between 61 and 80 decibels which means that someone with untreated severe hearing loss would have trouble following most conversations. They likely would have difficulty even hearing loud speech without amplification, such as hearing aids.

### Profound

Someone with profound hearing loss can only hear very loud sounds, those above 81 decibels; therefore, a person with a profound hearing loss probably would not hear any speech and only very loud sounds. They most often have difficulty hearing and following conversation even with hearing aids and often rely on lip-reading and/or sign language.

## **Causes of hearing impairment**

The World Health Organization (WHO) estimates that the causes of hearing impairment can be congenital or acquired:

### Congenital causes

Congenital causes may lead to hearing loss being present at or acquired soon after birth. Hearing loss can be caused by hereditary and non-hereditary genetic factors or by certain complications during pregnancy and childbirth, including: maternal rubella, syphilis or certain other infections during pregnancy; low birth weight; birth asphyxia (a lack of oxygen at the time of birth); inappropriate use of particular drugs during pregnancy, such as aminoglycosides, cytotoxic drugs, antimalarial drugs, and diuretics.

### Acquired causes

Acquired causes means that the hearing lost occurred at any age, due to illness or injury such as: infectious diseases including meningitis, measles and mumps; chronic ear infections; collection of fluid in the ear (otitis media); use of certain medicines, such as those used in the treatment of neonatal infections, malaria, drug-resistant tuberculosis, and cancers; injury to the head or ear; excessive noise; recreational exposure to loud sounds such as that from use of personal audio devices at high volumes and for prolonged periods of time and regular attendance at concerts, nightclubs, bars and sporting events; and wax or foreign bodies blocking the ear canal.

## Teaching strategies for students with auditory disability

Nowadays, some educative institutions have students with auditory disability in their classrooms. Thus, professors and teachers must do some arrangements and reasonable adjustments in order to facilitate the learning process for this type of students. According to the Division of Disability Resources & Educational Services of the University of Illinois, professors and teachers must take into account the following considerations when they have classes where there are students with auditory disability:

- Some students who are deaf are skilled lip readers, but many are not. Many speech sounds have identical mouth movements which can make lip-reading particularly difficult. For example, "p," "b," and "m" look exactly alike on the lips, thus, professors have to produce the sound using clearly differentiated lip movements while they are explaining the class.
- Make sure to have the visual attention of a student who is deaf before speaking directly to him/her. A light touch on the shoulder, a wave, or other visual signal may be helpful.
- Look directly at the student with auditory disability during a conversation, even when an interpreter is present. Speak clearly, without shouting. If there are some problems to be understood, rephrase the thoughts. Writing is also a good way to clarify.
- Common accommodations for students who are deaf or hard of hearing include sign language or oral interpreters, assistive listening devices, Telecommunications Devices for the Deaf (TDDs), volume control telephones, signaling devices, (e.g., a flashing light to alert individuals to a door knock or telephone ring), priority registration, notetakers, captioned videos, and time extensions for assignments and exams.

Furthermore, this Division mentions some means of communications used across the deaf community that professors can consider and some of them are:

- Several types of sign language systems.

**American Sign Language (ASL)** is a natural, visual language having its own syntax and grammatical structure.

**Signed Exact English (SEE)** is a manual system which utilizes English syntax and grammar.

**Fingerspelling** is the use of the manual alphabet to form words.

**Pidgin Sign English (PSE)** combines aspects of ASL and English and is used in educational situations often combined with speech.

Nearly every spoken language has an accompanying sign language.

- *Lip-reading*
- *Oral language interpreters: They should be professionals who assist persons who are deaf or hard of hearing with understanding oral communication. Sign language interpreters use highly developed language and Fingerspelling skills; oral interpreters silently form words on their lips for speech reading. Interpreters also use voice, when requested. Interpreters will attempt to interpret all information in a given situation, including instructors' comments, class discussion, and pertinent environmental sounds.*

*Moreover,* the Division of Disability Resources & Educational Services of the University of Illinois highlights some instructional strategies to support the learning process of students with auditory disability, which are the following:

- Invite students to self-identify on the first day of class by making a public statement such as: "Please contact me to request disability accommodations."

- Include a disability access statement in the course syllabus such as: "To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible.
- Circular seating arrangements offer students who are deaf or hard of hearing the best advantage for seeing all class participants.
- When desks are arranged in rows, keep front seats open for students with auditory disability and their interpreters.
- Repeat the comments and questions of other students, especially those from the back rows. Acknowledge who has made the comment so students who are deaf or hard of hearing can focus on the speaker.
- When appropriate, ask for a hearing volunteer to team up with a student who is deaf or hard of hearing for in-class assignments. Assist the student in finding effective notetakers from the class.
- If possible, provide transcripts of audio information.
- Allow several moments extra for oral responses in class discussions.
- In small group discussions, allow for participation by students with hearing impairment.
- Face the class while speaking; if an interpreter is present, make sure the student can see both you and the interpreter.
- People who are deaf or hard of hearing often use vision as a primary means of receiving information. Captioned videos, overheads, diagrams, and other visual aids are useful instructional tools for students with hearing impairments.
- Be flexible: allow a student who is deaf to work with audiovisual material independently and for a longer period of time.
- When in doubt about how to assist the student with auditory disability, ask him or her as privately as possible without drawing attention to the student or the disability.

## 2.3 Expertise

The auditory disability as other disabilities is product of a social restriction, of a lack of policies and strategies of incorporation. At present the international organizations of Human rights recognized by our national regulation and the law of top education recognize the right to the education of people with disabilities and the need of measures that should guarantee the equality in this one. In the last years, a large amount of universities of the world have proposed orientations for the incorporation of the auditory disability.

The term person with disability is used due to the fact that it is the established to world-wide level by the International Convention by the Rights of the People with Disability of United Nations to refer to this group of the population. This expression comes from the social model of the disability, which conceives this like a social restriction that isolates and excludes people with disabilities of the full participation in the social life and not like a consequence of the particular conditions of the individual; that is to say that exists diverse elements in the physical or social surroundings of people that limit or restrict their life (barriers/handicaps). As a result, the disability would have a social origin, no individual limitations.

One of the main points of the research is to generate conscience of Social Inclusion having in mind that is when a student with auditory disability is put into a general education classroom with the expectation that he or she will participate in this classroom as much as possible. The goal is to bring the services and modifications necessary for that student into the general education classroom. The general education teacher and the special education teacher work together to support students with auditory disability. Full inclusion is also an option, which would mean the student receives all his/her accommodations and support in the general education classroom.

A university context is challenging for all young people. Problems of adjusting to academic life and the obligations imposed often lead to failure and abandonment. To assimilate new information and knowledge they have to overcome the shortcomings of their previous school experience, such as language deficiencies, inadequate study conditions, a lack of logic skills, problems with reading comprehension and difficulty in producing text. But an integration requires not only the ability to carry out academic activities, but also involvement with colleagues, teachers and the environment. Both are fundamental in the early years of higher education for improving the chances of success.

Young deaf people, like any others, must deal with expectations, standards and ways of functioning that are different from their previous school experience. Adapting to this new reality will depend on their personal characteristics and skills, their history and how they face up this period of self-development as young adults, which is marked by the construction of identity, autonomy, ideals and interpersonal relationships.

A study by Foster, Long and Snell (1999) on the experience of deaf students in higher education in contexts of inclusion shows that the view they have of communication in the classroom and their involvement in the learning process is the same as that of their hearing colleagues, but they feel less integrated than the latter into university life. The study also reveals that many teachers do not bother to make the adaptations that favor deaf students and attribute the latter's success or failure to support services.

According to Goffredo (2004), to meet the special educational needs of young deaf people, the first step is to ensure their entry into the university through the entrance exam, but that does not guarantee that inclusion becomes a reality. Having overcome the barrier of entry, the next challenge is to remain on the course and this depends a lot on the mediation of the interpreter.



As Martins (2006) points out, the interpreter of sign language should be capable of perceiving the difficulties of deaf students and of discovering ways and methods for mitigating them. He/she should be a bridge between students, teachers and knowledge that will help overcome the linguistic difference in communicative interaction. Therefore, the author adds, the way the interpreters act requires a depth of theoretical knowledge of the different fields of study, familiarity with the language used in each situation and educational experience.

For Marschark et al. (2005), one of the assumptions of inclusion is that the discursive structure and information transmitted by a hearing professor to hearing students is appropriate to the knowledge and learning styles of deaf students, but deaf students form a more heterogeneous group than those who can hear. Most of them grew up in linguistically challenged environments, so they do not have the linguistic competences necessary for making effective use of the interpretation or of the textbooks, and many possibly entered higher education less well prepared than their hearing colleagues. Foster, Long and Snell (1999) raise other problems faced by deaf students: a delay in receiving information (the time between what is spoken and its translation); a break in eye contact while the teacher writes on the board, walks across the room or reads a document, which prevents lip reading; and a loss of information, when it is necessary to choose between looking at the interpreter or observing the professor while he handles an object in the laboratory or works with images.

The complex issues involving the academic performance of deaf students still need to be researched in depth. According to Lang (2002), even in countries with more tradition in the inclusion of deaf students in higher education institutions - like the United States, where in 1999 there were more than 25,000 of them - there is a greater understanding of the barriers and difficulties than of the solutions. What is positive is the general guidelines, such as respect for the linguistic difference and the offer of specific methodological help (special materials, new teaching technologies and differentiated support services) (Martins, 2006).

A digital newspaper named The Guardian published a testimony on July 14, 2017 called “As a deaf student, I’m used to being excluded. Universities must do better”. The story was about a student with auditory disability commenting about how hard it was the first time she went to classes at the University. She said that a professor yelled at her asking why she had not responded his question, she smiled and realized the professor did not know about her disability, she answered and expressed with signs “I’m deaf”. Then the professor requested her to sit at the front of the class, making her feel so uncomfortable due to the embarrassed situation she had to live the very first day at the University, and she described she felt “outed” as deaf to a room full of people.

Zoë McWhinney, a third-year student at the University of Birmingham, expressed during the interview to the digital newspaper the following: “I’m often reminded as a deaf student that we live in an audio world, in which deaf people regularly face social exclusion and loneliness. It can impact your day-to-day life in subtle ways: being told “it doesn’t matter” when you try to catch up on the conversation in the union bar or finding out that your seminar room doesn’t have a hearing loop.”

Zoë shared that being part of a university’s disabled students’ network has helped her, as has being friends with people who made her proud of her deaf identity and encouraged her to find the support she needed. As Max Barber, a Deaf student at the University of Greenwich, says: “The reality is that not everyone understands, but it is vital to make sure you are heard when asking for support – otherwise you miss out on the valuable education you paid for.”

Having in account the diverse difficulties that auditory disability students faced at college university life, it’s essential to mention that the significance of hearing often goes underappreciated until it is no longer available, and for students who have lived their entire life with a hearing loss, education can prove challenging. Teachers must adapt to each classroom of students and working with deaf or hard of hearing students requires some modification to traditional teaching methods.

However, modern techniques are allowing for a smoother adaptation to traditional education, for both students and teachers alike. Many opportunities exist for deaf education training and certification, and an educator's responsibility is to be prepared for his or her students' individual needs. For teachers of students with hearing loss, the right adjustments to the classroom environment coupled with advanced teaching methods can mean the difference between a student's success and failure.

Advances in technology and increased awareness have stimulated the creation of tools to assist deaf and hard of hearing college students. While the availability of specific technology varies by school or program, all institutions receiving federal funding are required under [Section 504 of the Rehabilitation Act of 1973](#) to be accessible to deaf and hard of hearing students. Per the [Americans with Disabilities Act](#) (ADA), all public colleges and universities must ensure deaf and hard of hearing students have equal access to all activities, regardless of funding.

The University of Washington is committed to ensure equal access and reasonable accommodation in its classes, services, programs, and activities, for students with auditory disability. The University of Washington have made a contract with CART, Communication Access Real Time Translation which is used to convert speech to text, this system is also referred to as captioning. It is accomplished through the use of a stenotype machine, computer, or other software to capture the spoken words which are then displayed on a screen as text, therefore students can use CART services on individual laptops or smartphones. It can also be displayed on large monitors or through a projector for use by an entire class. It applies the same technology used by the entertainment industry to provide real-time captioning, the service involves either a live stenographer on site or a remote feed to the stenographer. Remote CART requires an audio source for the speaker, such as internet phone service, and speech is captured and transmitted as text for the student. So that the student does not need any specialized software, as the service simply provides an email link to view the streaming text.

Having the appropriate tools at the university can lead students with auditory disability to success. As an example of results of having the right support from professors and classmates at the university it can be mentioned an extraordinary testimony of 22 students with auditory disability that achieved to obtain a university title afterwards of years of effort, in the Faculty of Humanities.

Newspaper Prensa Libre from Guatemala published on May 25, 2017 a story about 22 auditory disability students who started they major on 2009, after every obstacle faced at the university and desire of stop their studies they obtained the title to technical level of Professorship of Half Education in Pedagogy in the specializations of Technician in Educational Administration and Promoter in Human Rights and Culture of Peace from Universidad de San Carlos, Guatemala.

The dean of the Faculty of Humanities, Walter Ramiro Mazariegos, ensured that they always have supported students with auditory disability, by which, expects that the graduation of the first promotion as University Technicians motivate the rest of faculties to do the same.

The main objective at all universities should be to provide the appropriate tools in order students with auditory disability have access to a major university, as well and most important to feel part of the social environment, accepted by professors and classmates. Establishing that social inclusion is about feeling part of a community, bonded together by a common identity and shared values.

## **2.4 Hypothesis**

Methodological strategies that professors at Major of Fine Arts subspecialty Graphic Design, Major on Librarianship, Major on Science Education, Major on Science Education specialty Physical Education, Sports and Recreation, Major on Psychology, Major on Social Work, Systems Engineering of the Central Campus of the University of El Salvador apply during the class time help develop the learning process of students with auditory disability; depending on the effectiveness that each strategy provides to the students.

### **Null hypothesis**

The lack of methodological strategies that professors at Major of Fine Arts subspecialty Graphic Design, Major on Librarianship, Major on Science Education, Major on Science Education specialty Physical Education, Sports and Recreation, Major on Psychology, Major on Social Work, Systems Engineering of the Central Campus of the University of El Salvador apply during the class time stalls the learning process of students with auditory disability; counteracting the effectiveness that each strategy provides to the students.

## 2. 5 Operationalization of Variables

<p><b>Hypothesis :</b> Methodological strategies that professors at Major of Fine Arts subspecialty Graphic Design, Major on Librarianship, Major on Science Education, Major on Science Education specialty Physical Education, Sports and Recreation, Major on Psychology, Major on Social Work, Systems Engineering of the Central Campus of the University of El Salvador apply during the class time help to develop the learning process of students with auditory disability; depending on the effectiveness that each strategy provides to the students.</p>				
Independent variable	Definition	Dimension	Indicators	Instrument
Strategies applied by professors	Pedagogical activities applied by the professor during the class time in order to support the learning process of the students with auditory disability.	Methodological strategies applied during the class time	Professor verifies if the interpreter understands all instruction given during the class time.	Observation guide
			Professor verifies if the student with auditory disability understood the topic given during the class time.	Observation guide
			Professor verifies if the material used in class is accessible to the student with auditory disability.	Observation guide
			Professor uses strategies to include the student with auditory disability in team work.	Observation guide
		Academic interrelation between the professor and the student with auditory disability	Professor interacts with the student with auditory disability with the help of the interpreter.	Observation guide
			Professor encourages the student with auditory disability to participate during the class time.	Observation guide
			When a student with auditory disability has a doubt, professor pays attention to him/her.	Observation guide
		Homework assignment	Professor verifies if the interpreter clearly communicates the instructions about the homework assignment to the student with auditory disability.	Observation guide
			Professor assigns homework assignment accessible for the student with auditory disability.	Observation guide

			Professor verifies if student with auditory disability completes the homework assignment correctly.	Observation guide
<b>Dependent variable</b>	<b>Definition</b>	<b>Dimension</b>	<b>Indicators</b>	<b>Instrument</b>
Learning process of the students with auditory disability.	The performance of the process is focus on the participation, the interest and the motivation the students with auditory disability present during the class time and out of the classroom.	Participation during the class time	Students with auditory disability participate actively during the class time.	Observation guide
			Students with auditory disability participate actively in team works during the class time.	Observation guide
			Students with auditory disability interact with the professor during the class time.	Observation guide
			Students with auditory disability work with the rest of students in the development of the activities.	Observation guide
		Interest during the class time.	Students with auditory disability pay attention to all instruction and information given by the professor during the class time.	Observation guide
			Students with auditory disability ask the professor for reinforcement if there is any doubt or lack of knowledge about any topic.	Observation guide
			If there is any doubt about the homework assignment, students with auditory disability ask to the interpreter to reinforce the instructions.	Observation guide
			Students with auditory disability are aware of their mistakes and correct them.	Observation guide
			Students with auditory disability complete all the activities assigned by the professor.	Observation guide
		Motivation during the class time	Students with auditory disability encourage themselves to participate during the class time.	Questionnaire

		Strategies applied out of the classroom	Students with auditory disability attend advisory sessions.	Questionnaire
			They look for extra information on internet, books, articles, etc.	Questionnaire
			Students with auditory disability take part of study groups.	Questionnaire
			They practice, complete and solve exercises to master a topic.	Questionnaire
			Students with auditory disability make use of technological tools to complete their tasks, to practice and to solve exercises.	Questionnaire
			Students make background reading to be better prepared for future lessons or evaluations.	Questionnaire
			They write questionnaires to study when they have evaluations.	Questionnaire
<b>Moderator variable</b>	<b>Definition</b>	<b>Dimension</b>	<b>Indicators</b>	<b>Instrument</b>
The effectiveness that each strategy provides	The degree to which each strategy transmits to students with auditory disability a significant learning experience.	Development of academic activities in the classroom.	Team work to make a project.	Observation guide
			Presentations.	Observation guide
			Dramatizations.	Observation guide
			Individual work.	Observation guide
			Use of technological tools	Observation guide
			Quizzes.	Observation guide
		Development of academic activities out of the classroom.	Visit a museum in order to do a research.	Questionnaire
		Create a blog to post relevant information about a topic given by the professor.	Questionnaire	



### **III. RESEARCH DESIGN**

#### **3.1 Type of research**

##### **Non-experimental**

The research team made use of non-experimental design because the type of research is qualitative, referring to the fact that the data consists of non-numerical and therefore cannot be analyzed using statistical techniques. The analysis of this research consisted mainly of a written description of the experiences gathered when observing the interaction between students with auditory disability and their professors. The researchers considered non-experimental design as one of the most convenient ones since the researchers did not control, manipulate or alter the predictor variable or subjects, but instead, the research team relied on interpretation, observation or interactions to come to a conclusion.

##### **Qualitative**

Qualitative research was applied as well to this research because of the sample size. Also, it is important to mention that the researchers used this design to gain an understanding and to dive deeper into the problem. To collect the data the research group used the most common instruments for this type of research. For example, a survey was designed to describe certain aspects or characteristics of the population and to test hypothesis about nature of relationship within a population. This design enabled to administer a standardized questionnaire to the population of this research work in which data was collected through an interview addressed to the Vice-Dean of the School of Arts and Sciences, since the largest number of students with auditory disability is located in this school. Also, a questionnaire was filled by students with auditory disability registered in Major of Fine Arts subspecialty Graphic Design, Major on Librarianship, Major on Social Work, Major on Science Education specialty Physical Education, Sport and Recreation, Major on Psychology, Systems Engineering of the Central Campus of the University of El Salvador.

## **3.2 Study design**

### **Research design: Descriptive**

The study can be developed from different perspectives but for the intentions of this research will be addressed from the descriptive point of view because it focused on identifying and presenting with great detail the curriculum adaptations and strategies applied by professors who have classes where there are students with auditory disabilities. As well, this research described some situations, whether positive or negative, that students with auditory disability have to go through over the course of their education processes in the following majors: Major of Fine Arts subspecialty Graphic Design, Major on Librarianship, Major on Social Work, Major on Science Education specialty Physical Education, Sport and Recreation, Major on Psychology, Systems Engineering of the Central Campus of the University of El Salvador. It is pretended to describe if professors apply strategies to support students with auditory disability's learning process, and if so, how they apply them. In order to accomplish the objectives, qualitative instruments were used to collect the information inquired. As a result, this study design allowed the researchers to gather pertinent and relevant information regarding this phenomenon.

## **3.3 POPULATION**

The population for this study is formed by:

- a. Population: 24
- b. Sampling frame: 17
- c. Sampling: 17

## Study Population

According to the Assistance Office for Students with Disabilities of the University of El Salvador there is a total population of 24 students with auditory disability (See table below). Those students are distributed in the 12 Schools that are located in the Central and the East Multidisciplinary Campus of the University of El Salvador.

This study population is distributed in the different academic units as the next table shows:

SCHOOL	ACADEMIC UNIT	STUDENTS WITH AUDITORY DISABILITY
School of Sciences and Humanities	Major of Fine Arts subspecialty Graphic Design	6
	Major on Librarianship	1
	Major on Science Education	2
	Major on Science Education specialty Physical Education, Sports and Recreation	5
	Major on Psychology	1
	Major on Social Work	1
School of Engineering and Architecture	Systems Engineering	1
School of Economics	Major on Economics	2
East Multidisciplinary	Major on Physiotherapy and Occupational Therapy	2
	Professorship on Biology Specialty Elementary School and Middle School	1
	Major on Mathematics	1
	Major on Science Education specialty Elementary School	1
<b>TOTAL</b>		<b>24</b>

### **3.4 Sample**

Due to the size of the population, for this research, the sample was formed by 17 students with auditory disability from the School of Arts and Sciences and the school of Engineering and Architecture of the central Campus of the University of El Salvador taking into consideration that the largest group of students with auditory disability studies in the campus previous mentioned.

### **3.5 Sample Selection process**

Since the 17 students with auditory disability of the Central Campus of the University of El Salvador were part of the groups observed and considering that each of these 17 students are registered in at least 2 subjects, there were 34 groups of class to be studied. Nevertheless, only the groups that had largest number of students with auditory disability were selected in order to observe the interaction among the students with auditory disability, their classmates and their professors.

### **3.6 Subjects Inclusion/exclusion criteria**

For the development of this research project, specifically in regard to the professors and interpreters, it was necessary to make use of the convenience sampling (since it is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher) in order to determine which professors were surveyed among those whose classes were observed.

### 3.7 Techniques and research instruments

The followings techniques and instruments were used in this research:

I. **Observation Guide for class time:** The observation guide provided information about the strategies that professors, classmates and interpreters applied while working with students with auditory disability during the class time. It contained two sections: The first one had 12 indicators regarding the Pedagogical Strategies applied by Professors. Its objective was to verify disabled students' relationship with the other students, and the teaching strategies that are used for them to do work team during the class. As well how professors motivated students and the importance professors demonstrated for the activities performed in class by students with auditory disability. An important point was evaluated on this first section and was the interaction observed during the class between students with auditory disability and professors, as well the type of assignment they had in every class and the importance professor gave to interpreter's work in class.

The second section was regarding the performance students had during the class time. The research team took in consideration the participation they performed in class, the development students with auditory disability performed with their classmates, and how the different activities in the class are managed. An important point to remark was the level of interest auditory disability students payed in class and the reinforcement they requested, in order to have the best results on the evaluation.

All members of the research team were paying attention to every single activity during real classes at the School of Arts and Sciences, and the School of Engineering and Architecture. The researchers were sitting down at

the back of the classroom taking notes about all aspects and important details that helped the guide be completed. (See appendix I)

II. **Questionnaire:** This questionnaire was filled out by students with auditory disability of the School of Arts and Sciences, and the School of Engineering and Architecture. It had 4 sections: The first section consisted of socio-demographic information about students with auditory disability. The second one was a table of 11 statements about activities or study habits. This second section was about how often students with auditory disability search for extra information through internet and the advisories they request to professors in case they have some doubts or concerns on the topic. As well, the type of tools students have to develop the assignments was considered, if they had access to Internet if they searched updated information about the topic to get the best results in the evaluations.

The third section contained 3 open questions. This last section was named Strategies by Professors. Students had the opportunity to express the type of individual or team activities or different strategies they used to develop the guides and class.

The fourth and last section was for the Institutional support that students with auditory disability have by the School of Sciences and Humanities.

All these instruments received the approval of the expert in investigations, and advisor of the research Pedro Antonio Salazar Murcia, Master on Social Research. (See appendix II)

### **III. Interview to Vice-Chancellor of the School of Sciences and Humanities.**

This third instrument was developed in order to get a detailed information about the students of auditory disability policies of inclusion for students with disability applied at the University of El Salvador. The interview

was only addressed to Edgar Nicolas Ayala, Vice- Chancellor of the School of Sciences and Humanities due to the fact that the majority of students with auditory disability are located in this school. (See appendixes III and IV)

### **Information analysis plan**

Three data collection instruments were designed to collect the necessary information for this investigation. The research team prepared an interview for the students with auditory disability, their professor and the Vice-Chancellor of the School of Sciences and Humanities. Then, a questionnaire was completed by students with auditory disability. Moreover, an observation guide was required to describe the strategies students with auditory disability, their classmates, and their professors apply during class time.

In order to collect the data from the interview, the research team taped record the interview and took notes at the same time. Later the tape and notes were reviewed, occasionally writing down direct quotes that are deemed especially relevant.

After collecting the data, the members of the research team reviewed the notes and the tapes and wrote a report that summarized and interpreted the information obtained. Finally, the information collected from the interview was presented in an essay format due to the fact that the nature of this data is qualitative.

For getting the information from the questionnaire, the research team needed to manually transfer the responses from the questionnaires into a spreadsheet (designed by the researchers). Once the group entered the data from all the questionnaires into the spreadsheet, a member of the research team checked some of the data for accuracy. If there were many errors, the researchers considered checking more of the data. When the team was happy that all the data was presented and corrected, they calculated how many people selected each response. The researchers counted this up manually. To display the information, the research team set up graphics.

To collect data from the observation the researchers wrote comments about what they observed in the class groups. Then, they checked their comments. After checking the comments, the team wrote a report that summarized and interpreted the information obtained. Finally, the information collected from the observation guide was presented in an essay format.

The process of information analysis was useful to prove or reject the hypotheses designed for this inquiry.



## **IV. DATA ANALYSIS AND INTERPRETATION**

### **4.1 Introduction**

This chapter discusses the data analysis and findings from observation guides, questionnaires, and an interview. The purpose of this study was to describe the curriculum adaptation and strategies applied by professors who have classes where there are students with auditory disability at the School of Arts and Sciences of the University of El Salvador, as well as the strategies that the Students with Auditory Disability make use in their learning process. In this chapter, the captured data from the qualitative research is presented, analyzed, described and interpreted in a systematic manner as the next step of the research process.

### **4.2 Analysis of Class Observation Guide**

The following analysis is based on the Class Observation Guide done by the researchers in classes with students with auditory disability. The objective of the observation guide was to prove if there was help provided to the students in order to have the best academic development on their major. In the following analysis will be described how the class is structured and given to the students. The guide was divided in two main categories, the first one is Professor's pedagogical strategies and the second is student's performance.

On the observation held, the research team had as a first main category: Professor's Pedagogical Strategies, in this category was observed if the student understood the topic given during the class time. In the classes, professors provided the topic in a general method, students with auditory disability did not receive any special attention except that of the interpreter that was helping students understand the topic and the explanation provided by the professor.

During the classes, there was team work, the impaired-ear student is included by their classmates when they realized the student with disability was looking to be part of one team. All regular students had already a team to work with, the interpreter helped and asked for a group who wanted to have the student with disability in their team, which was really sad to see that the students were excluded as the lack of sign communication between professors and regular students towards the auditory disability student.

The strategies applied by professors during the classes were body language and the help provided by the interpreter, some of the professors addressed the interpreter to ask if the hearing-impaired student had a doubt or if everything was clear. The visual aid used by professors were images on the power point presentation, videos but without any transcription or caption videos, no special material was prepared thinking of the student with auditory disability. Professors provided the class without being aware that an impaired-ear student was in their classes due that they do not give any pause for the interpreter to explain all the topic information or requested to repeat once again the explanation provided. When in classes the professor requested students' participation the hearing-impaired students requested to participate by raising their hand while the interpreter explained the professor the student's with auditory disability point of view, professors encourage students and clap in sign language for the effort and interest provided by the student with auditory disability.

As visual aids, some of the professors provided brochures which are considered a good idea by one of the interpreters as it will be taken by the student, so the interpreter can provide an extensive explanation after the class. Power point slides were presented in all the classes with images and videos, not adapted with transcription but the images and scene of the video help the student with auditory disability understand and have a clear idea about the topic. Some of the students laughed when seeing the videos.

Students with auditory disability had some doubts related to the topic provided and professors at the end of the class provided a time for questions or doubts; that was the moment when the interpreter helped the impaired-ear student to clarify their concerns and professors were willing to help them by using a lot the body language or by asking the interpreter how to say some words or questions as: Do you have another question? Or I'm happy to help you. The student with auditory disability felt part of the class and smiled with all the class.

The interaction between the student with auditory disability and the professor is almost just at the end of the class in case the professor addresses the student, not all the professors requested if the impaired-ear student had a doubt or in need of more details to have the topic provided clear, every time the student had a doubt the interpreter helped them as none of the professors knew sign language, there was in one class that the interpreter arrived late and the professor started the class without taking into account that one of his students would not be understanding as she needed extra help from the one available in the classroom, as it was the video presented by the professor.

Homework assignments are the same for students with the auditory disability and regular students, as well the evaluations are the same for both type of students. Evaluations are complicated for students and interpreters due to the technical language and grammar. Interpreters are the best help a student who is deaf or hard of hearing can have in the classroom as they are their professors, they helped them in all the process on their majors and in each class.

Professors do not have a curriculum adapted to the special needs of students with auditory disability, even though the class is not provided with the best equipment and methods that might help their academic development students attend classes with a positive attitude, as well interpreters try to do the best work they can to help understand the topic provided during the class and to communicate between regular students and professors.

The second main category studied in the Class Observation Guide was the Student's Performance. This category has as objective to determine if the Inclusion Policy is applied or not during the classes at the University of El Salvador and to analyze how students with auditory disability manage the disability when interacting with the professor and classmates.

It was observed that students with auditory disability tried to participate in each class and they requested help from the interpreters who explained the professor that the deaf student wanted to share a comment with the class. Fifty percent of the students participate the rest of them just observed the interpreter who was explaining what other classmates were commenting. In a class, when the professor asked if the hearing-impaired student wanted to participate, the student decided to participate and draw a smile on her face as she felt part of the class.

Team work is one of the hardest activities students with auditory disability developed due to most of the regular students cannot communicate in sign language and the interpreter has to communicate everything to the hearing-impaired students and their classmates. The classmates tried to explain and provide as quickly as possible the task assigned for the ear impaired student so the student can be focus in one activity and work in the task. From time to time the professor addressed to the deaf student to verify if she or he was working and understanding what the activity was about.

The research team observed that students with auditory disability were focused during the class and payed attention to the tasks the professors were requesting for the next class. Also, hearing impaired students asked the professor if something was not clear as they try to understand all during the class and the professor had communication with the interpreter as necessary. Moreover, it was noticed that the interpreter is one of the main aids during classes, they helped students with auditory disability to understand the topics, tasks and to provide feedback in order to support hearing impaired students' performance. Students with auditory disability had good communication with their interpreters and saw them as a needed support on their path through the major.

### **4.3 Questionnaire**

During this research 15 questionnaires were completed by students with auditory disability in the School of Arts and Sciences in the Central campus of the University of El Salvador, semester I – 2018. The questionnaire was divided in 4 sections, sociodemographic information, learning habits, strategies applied by professors, and institutional area. The main purpose of this questionnaire was to identify the strategies that the Students with Auditory Disability apply out of the classroom in order to support their learning process.

#### **4.3.1. Learning habits.**

##### **4.3.1.1. Statements**

In this section were presented 12 statements in which the students selected the frequency in which they performed each activity.

Table 1:

1. I ask the professor advisory sessions when needed.

TABLE 1

HOW OFTEN THE STUDENT ASKS FOR ADVISORY	FREQUENCY	PERCENTAGE
NEVER	4	24%
SELDOM	3	18%
SOMETIMES	5	29%
USUALLY	5	29%
ALWAYS	0	0%
TOTAL	17	100%

GRAPH 1



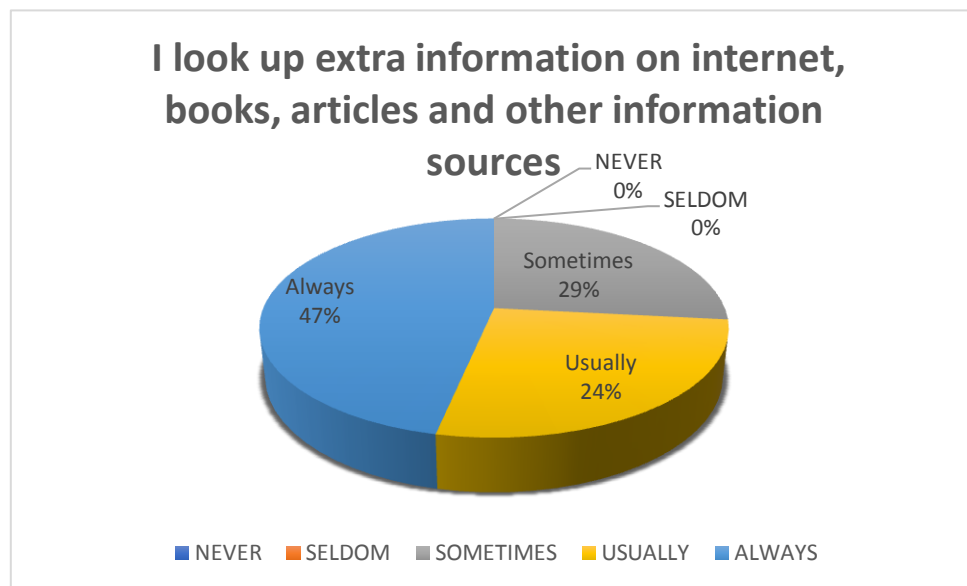
The response rate for the statement “I ask the professor advisory sessions when needed” was: 24% of the Students with Auditory Disability answered that they do not attend advisory sessions, while 18% of them affirmed they seldom ask the professor for advisory sessions, 29% said that sometimes they attend sessions; on the other hand, 29% responded that they usually ask the professor for advisories and none of them (0%) said that they always attend advisory sessions.

2. I look up extra information on internet, books, articles and other information sources in order to reinforce the contents covering in class or when I have presentations.

TABLE 2

HOW OFTEN THE STUDENT SEARCH FOR EXTRA INFORMATION	FREQUENCY	PERCENTAGE
NEVER	0	0%
SELDOM	0	0%
SOMETIMES	5	29%
USUALLY	4	24%
ALWAYS	8	47%
TOTAL	17	100%

GRAPH 2



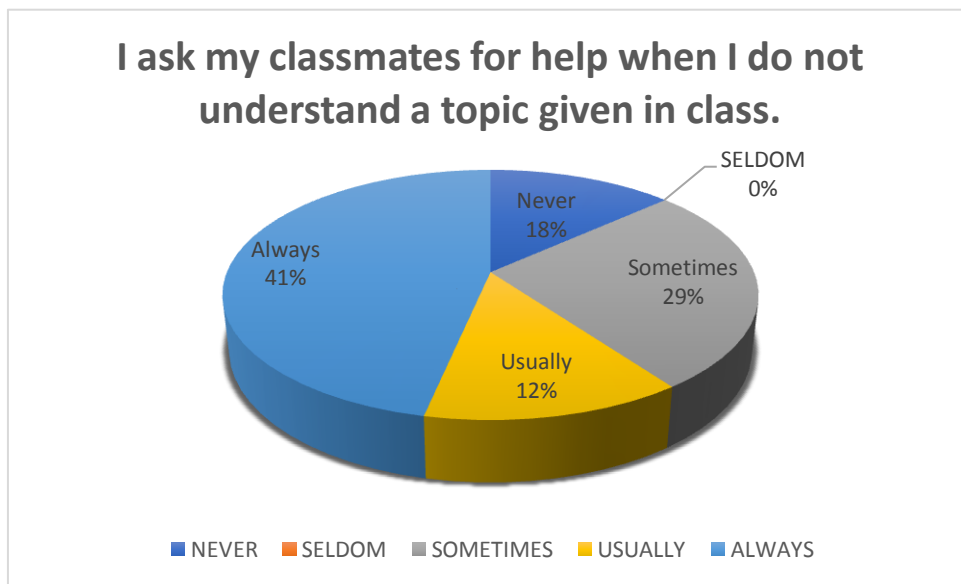
The response rate for the second statement was: none of the Students with Auditory Disability answered that they look up extra information in order to reinforce the topics covering in class or when they have a presentation, also, none of them said that they seldom look for extra information, while 29% affirmed that sometimes they search for extra information in order to better understand the topics covering in class, 24% responded that they usually look up extra information and 47% of Students with Auditory Disability affirmed that they always seek out extra information in order to reinforce the contents and when they have a presentation.

3. I ask my classmates for help when I do not understand a topic given in class.

TABLE 3

HOW OFTEN THE STUDENT ASKS THE CLASSMATES FOR HELP	FREQUENCY	PERCENTAGE
NEVER	3	18%
SELDOM	0	0%
SOMETIMES	5	29%
USUALLY	2	12%
ALWAYS	7	41%
TOTAL	17	100%

GRAPH 3



In the third statement, it was observed: 18% of the Students with Auditory Disability answered that they never ask their classmates for help when they do not understand a topic, also, none of them said that they seldom ask for help to their classmates, while 29% affirmed that sometimes they ask their classmates when they do not understand , 12% responded that they usually ask for help and 41% of Students with Auditory Disability affirmed that each time they do not understand a topic given in class they ask their classmate for help and to explain it.

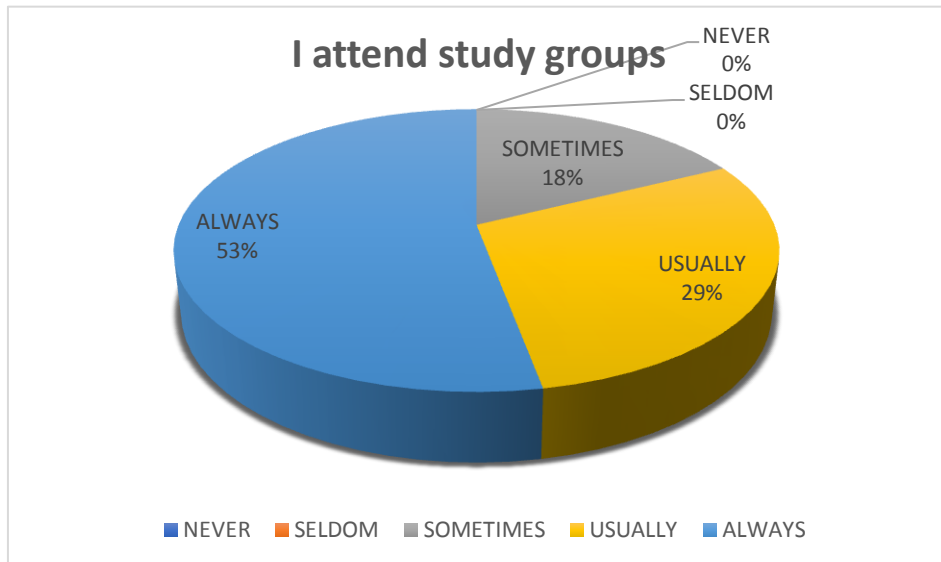


4. I attend study groups.

TABLE 4

HOW OFTEN THE STUDENT ATTENDS STUDY GROUPS	FREQUENCY	PERCENTAGE
NEVER	0	0%
SELDOM	0	0%
SOMETIMES	3	18%
USUALLY	5	29%
ALWAYS	9	53%
TOTAL	17	100%

GRAPH 4



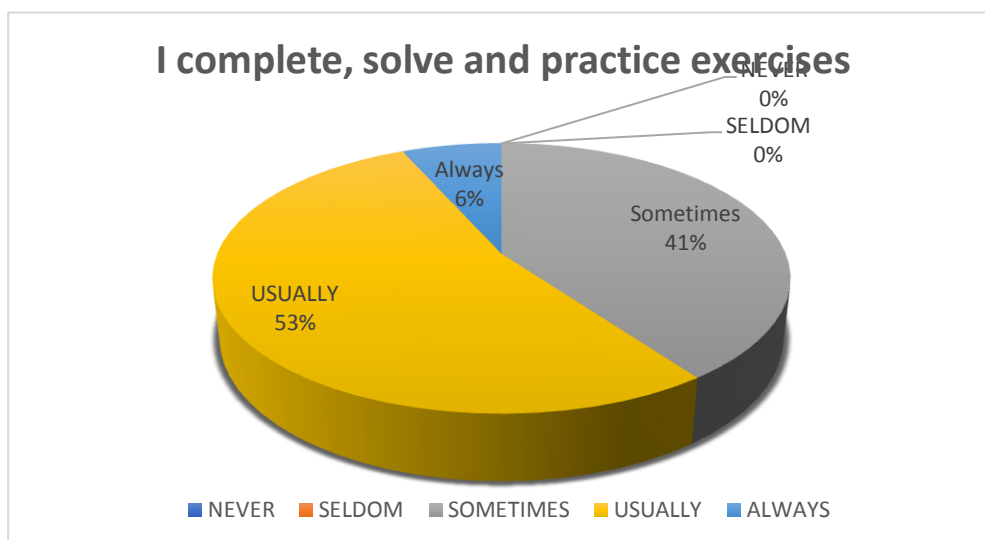
The response rate for this statement was: 18% of the student with auditory disability affirmed that sometimes they attend to study groups, 29% responded that they usually attend to study groups and 53% of hearing impaired students affirmed that they always attend to study groups.

5. I complete, solve and practice exercises in order to better understand and clarify a topic.

TABLE 5

HOW OFTEN THE STUDENT COMPLETES EXCERCISES	FREQUENCY	PERCENTAGE
NEVER	0	0%
SELDOM	0	0%
SOMETIMES	7	41%
USUALLY	9	53%
ALWAYS	1	6%
TOTAL	17	100%

GRAPH 5



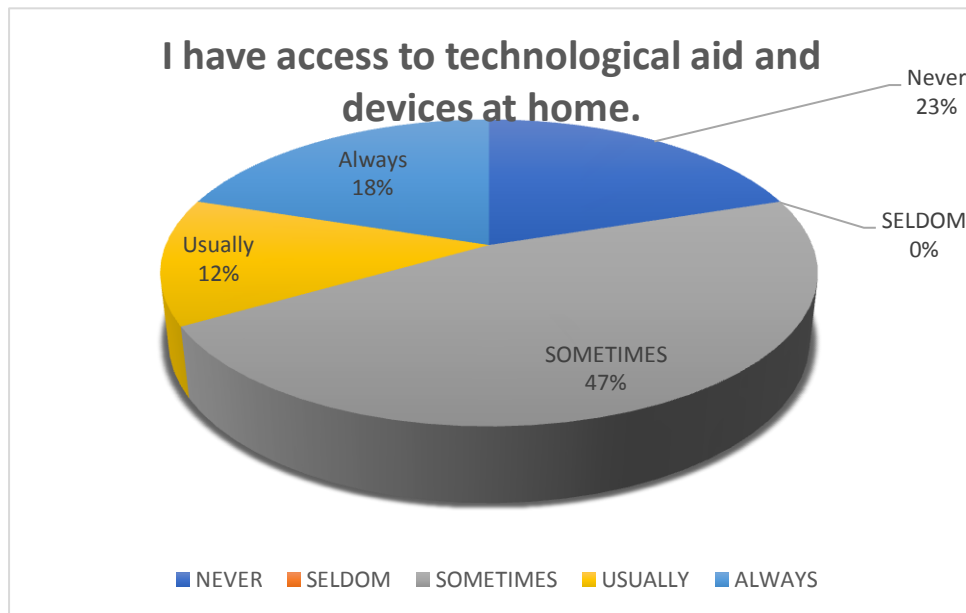
The response rate obtained in this statement was : 41% of the Student with Auditory Disability answered that they sometimes complete, solve and practice exercises related to the content of the class in order to better understand y clarify a topic, 53% of them responded that they usually practice exercises related to the contents they have seen and 6% of Students with Auditory Disability affirmed that they always solve and complete exercises in order to clarify any idea related to the topics given during classes.

6. I have access to technological aid and devices at home.

TABLE 6

HOW OFTEN THE STUDENT HAS ACCES TO TECHNOLOGY	FREQUENCY	PERCENTAGE
NEVER	4	23%
SELDOM	0	0%
SOMETIMES	8	47%
USUALLY	2	12%
ALWAYS	3	18%
TOTAL	17	100%

GRAFIC 6



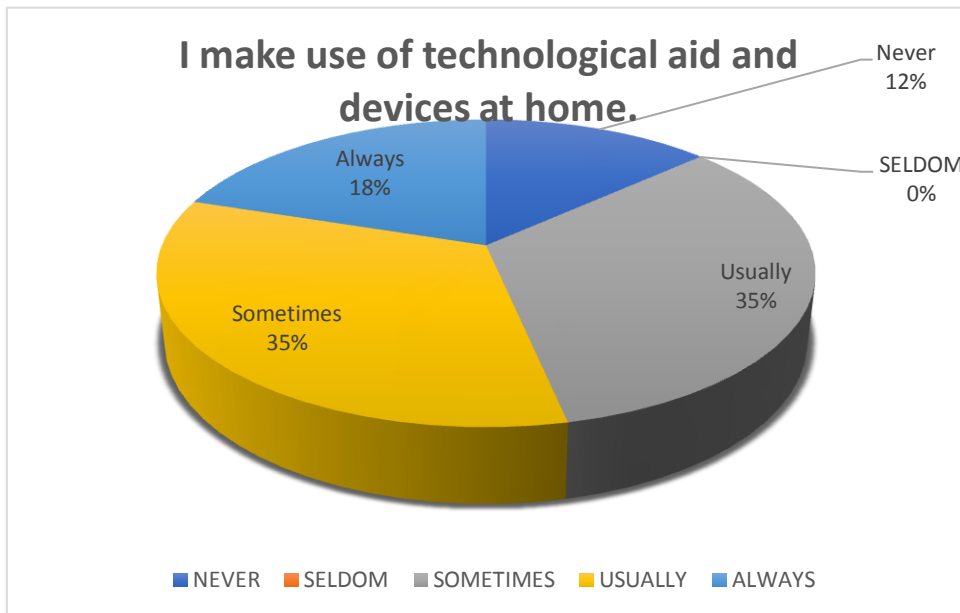
In this statement the response rate was: 23% of the Students with Auditory Disability answered that they do not have access to technological tools at home, while 47% affirmed that sometimes they have access to technological aid and devices at home. 12% responded that they usually have access to electronic devices and 18% of Students with Auditory Disability affirmed that they always have access to technological aid and devices at home.

7. I make use of technological devices available to me at home for doing my homework.

TABLE 7

HOW OFTEN THE STUDENT HAS ACCES TECHNOLOGIC DEVICES	FREQUENCY	PERCENTAGE
NEVER	2	12%
SELDOM	0	0%
SOMETIMES	6	35%
USUALLY	6	35%
ALWAYS	3	18%
TOTAL	17	100%

GRAPH 7



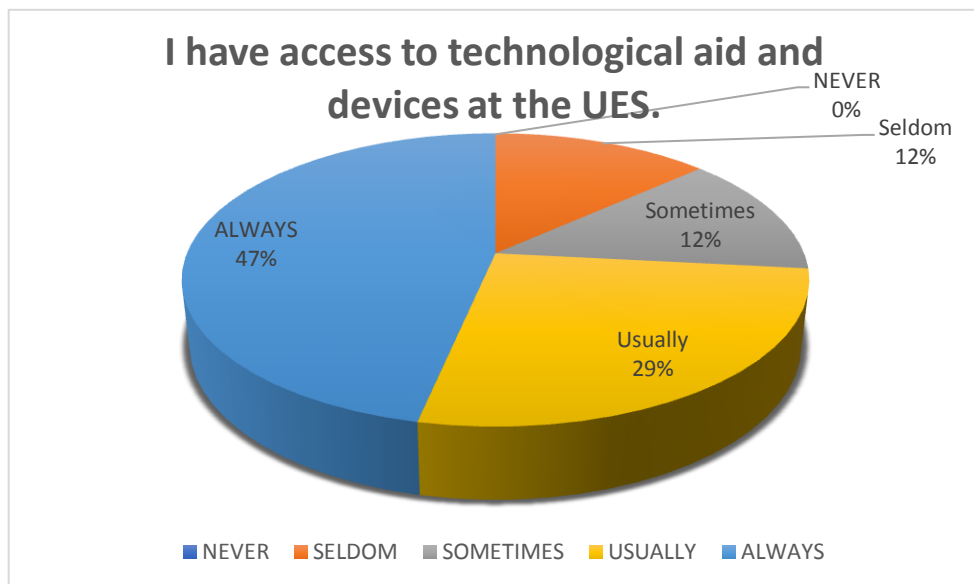
In this statement the response rate was: 12% of the Students with Auditory Disability answered that they do not make use technological devices at home due to the fact that they do not have that facility, while 35% affirmed that sometimes they make use of technological aid and tools at home. 35% responded that they usually use them and 18% of Students with Auditory Disability affirmed that they always make use of the technological aid and devices that they have at home.

8. I make use of the technological aid and devices that the University facilitates in order to do my homework.

TABLE 8

HOW OFTEN THE STUDENT HAS ACCES TECHNOLOGIC DEVICES	FREQUENCY	PERCENTAGE
NEVER	0	0%
SELDOM	2	12%
SOMETIMES	2	12%
USUALLY	5	29%
ALWAYS	8	47%
TOTAL	17	100%

GRAPH 8



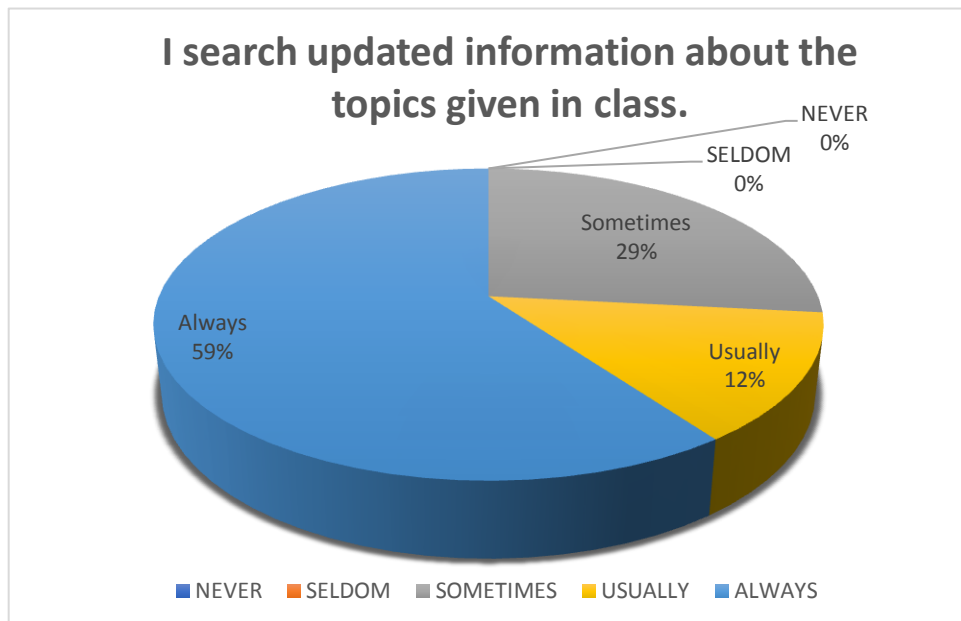
The rate response gotten in this statement was: 12% of the Students with Auditory Disability answered that they seldom make use of technological tools that the University of El Salvador facilitates, while 12% affirmed that sometimes they make use of technological aid and devices at the University. 29% responded that they usually use them and 47% of Students with Auditory Disability affirmed that they always make use of the technological aid and devices that the University of El Salvador facilitates them.

9. I search updated information about the topics given in class.

TABLE 9

HOW OFTEN THE STUDENT SEARCHS UPDATED INFORMATION	FREQUENCY	PERCENTAGE
NEVER	0	0%
SELDOM	0	0%
SOMETIMES	5	29%
USUALLY	2	12%
ALWAYS	10	59%
TOTAL	17	100%

GRAPH 9



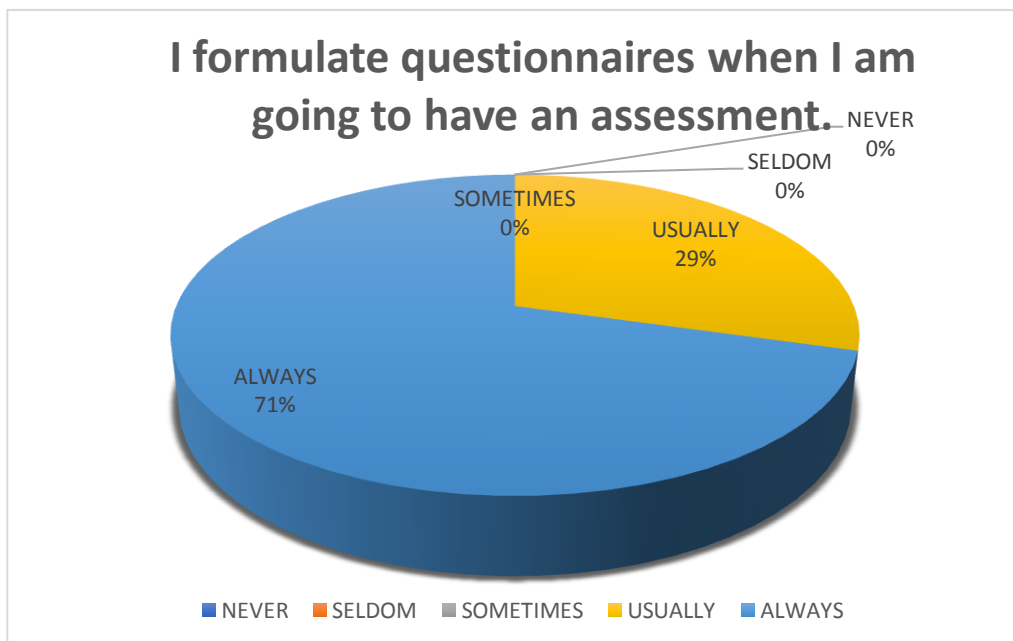
The response rate for the 9th statement was: 29% of the Students with Auditory Disability affirmed that sometimes they seek updated information about the topics given in class, 12% responded that they usually search for updated information and 59% of Students with Auditory Disability affirmed that they always search updated information of the topics given in class.

10. I formulate questionnaires when I am going to have an assessment.

TABLE 10

HOW OFTEN THE STUDENT FORMULATES QUESTIONNAIRES	FREQUENCY	PERCENTAGE
NEVER	0	0%
SELDOM	0	0%
SOMETIMES	0	0%
USUALLY	5	29%
ALWAYS	12	71%
TOTAL	17	100%

GRAPH 10



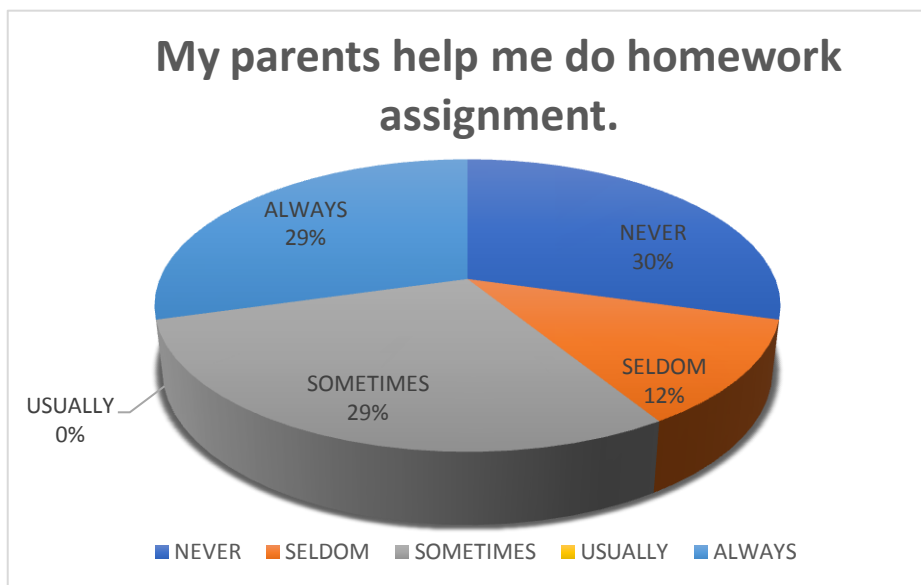
Most of the students with auditory disability (71%) affirmed that they always elaborate questionnaires when they are studying for an assessment and some of them (29%) responded that they usually formulate questionnaires when they have an assessment.

11. My parents help me do homework assignment.

TABLE 11

HOW OFTEN THE PARENT SUPPORT THE STUDENT TO DO HOMEWORK ASSIGNMENT	FREQUENCY	PERCENTAGE
NEVER	5	30%
SELDOM	2	12%
SOMETIMES	5	29%
USUALLY	0	0%
ALWAYS	5	29%
TOTAL	17	100%

GRAPH 11



The rate response gathered during this data collection was: 30% of the Students with Auditory Disability answered that they never receive help from their parents to do the homework assignments, while 12% affirmed that their parents seldom help them do homework assignments, while 29% responded that their parents sometimes support them with their assignments and 29% of Students with Auditory Disability affirmed that they always receive support from their parents when they have homework assignment.



**4.3.1.2. Question 12:** Other learning strategies that I used when I have an assessment.

In this question the Students with Auditory Disability mentioned other strategies that they use when they are studying for an evaluation, preparing for a presentation, or when they have a homework assignment. As a result of the information gathering, the learning strategies that the students with auditory disability implement are:

- Look for the of the concepts that they do not understand
- Elaborate summaries.
- Read papers or books in order to review the information
- Ask for help
- Memorize
- Practice
- Make a review of the class
- Research
- Look for main ideas of the content given in classes.

#### **4. 3. 2 Strategies applied by professors**

In this section, some strategies that professor applied were analyzed but in the student's with auditory disability point of view, however it is only regarding the activities and homework that professors assign out of the classroom due to the fact that the professor's performance will be analyzed deeply through observation in which the observation guide was used. This section contains 3 open-ended questions such as:

- What academic activities (individual or in team works) out of the classroom does the professor assign?

In this question, the most common activities that the students with auditory disability mentioned are teamwork, research, analysis, summaries, and play roles. Even though these activities are presented in classes, it requires to be focused and to work on this.

- Mention other activities that you practice out of the University.

Some of the students stated that the activities they do are studying, taking courses like English courses, Spanish grammar courses, doing homework; some of the students with auditory disabilities who are studying the Major on Science Education specialty Physical Education, Sports and Recreation said that they prefer to play sports. But most of them expressed that the activity they rather do is going out with friends.

- What strategies do you apply to perform those activities?

In this question most of the students with auditory disability mentioned that strategies that they implement in order to do the homework assignments and to study are: highlight main ideas meanwhile they are reading, write summaries, when they do not understand some vocabularies, they asked their relatives or interpreters for help, also they look up concepts on internet or in dictionaries.

In the collecting data, it is appreciated that most of the students with auditory disability make an effort in order to learn and get good grades, but they need more motivation and help. They try to do their best even though that there are some concepts that they do not understand, it is important to highlight that written Spanish is not their second language and it is hard for them to get all the information given in classes.

#### **4.3.3 Institutional area**

During this section it was analyzed the support that Students with Auditory Disability received from the School of Arts and Sciences. Most of the students (80%) affirmed that they have received support meanwhile the 20% informed that they have not received support.

Some of the students who said they have received support mentioned that the help they received are: interpreters, the Assistance Office for Students with Disabilities of the University of El Salvador, the electronics devices such as

computers that the University facilitates, internet access and the support that professors provide.

They mentioned that they received motivation from the people who work in the Assistance Office for Students with Disabilities of the University of El Salvador. One of the points that was discussed is the interpreter that the University of El Salvador assign and they mentioned that the interpreters help and encourage them, especially in classes, they do a great job but some of them mentioned that they would like the interpreters to receive special training.

#### **4.4 Analysis of the interview addressed to Edgar Nicolás Ayala, Vice-Dean of the School of Arts and Sciences**

Edgar Nicolás Ayala stated that between 97% and 98% of students with auditory disability are studying majors at the School of Arts and Sciences and only 2% of their population are registered in some other schools. The Vice-Dean of School of Arts and Sciences remarked that he has acknowledged the need about the Inclusion Policy, reason why based on the National Law that was passed by the government the policy “Política de Educacion Inclusiva” was created, in which Ana Maria de Alvarado was immersed, she had some very good projects, such as to build an infrastructure only for students with disabilities so they can be placed in one area. When she finished the administration, no one has addressed the topic as she did, and no continuity has been given to the projects.

The Vice-Dean commented that the University of El Salvador has invested time and money on training teachers on sign communication due that there were some troubles with professors that felt not well prepared to provide classes to students with auditory disability as they were not informed about the students’ Rights and the law that protects students with auditory disability.

The University of El Salvador provides a training in sign language to professors and administrative employees mainly people working at Academic Administration, which is given by Manos Magicas. This Institution is specialized in Education and Sign language, the trainer is deaf. As well, it was a class for regular

students, so they can have access to learn sign language and interact with the students with auditory disability.

Edgar Nicolás Ayala stated that the School of Arts and Sciences have taken some steps on helping students with auditory disability but the main inconvenient is the lack of budget. There is not enough money for paying interpreters, since these are tools and help provided by the University for students with auditory disability. Rosario Villalta, who is in charge of Unidad de Atención de Estudiantes con Discapacidad which was created in 2014, helps students by providing support and doing work assignments in the small library that students with auditory disability have.

The School of Arts and Sciences is working on a curriculum update that will begin in 2019. The curriculum update will help students to be taught in the appropriate method. The School has two main assignments one is to train professors that work with the auditory disability student's population and the second is to provide more equipment to develop the classes.

The Vice-Dean stated that regarding the School of Arts and Sciences, this is doing the best and what it can be afforded but regarding technology they have not done that much as all schools should be equipped with devices that will help the development of the study for students with auditory disability. The greater effort is concentrated in getting people to understand each other.

## V. CONCLUSIONS

The results obtained through the investigation revealed that ear impaired students are a population that is growing; and even the authorities of the University provide a team of interpreters to assist this population, it is important to adapt the curriculum in order to implement appropriate strategies and methodologies that support this population's teaching-learning process.

Moreover, it was observed that despite the Inclusion Policy was implemented, during the class time professors provide the topic in a general method without adapting methodological strategies to work with students with Auditory Disability, students do not receive any special attention besides the interpreter's assistance and the explanation provided by the professor. Also, professors prepare PowerPoint slides and make use of body language and gestures while explaining classes and giving instructions which help, to a certain extent, students with auditory disability; and professors require interpreter's help in order to interact with deaf students.

On the other hand, the research team was able to discover the strategies that students with auditory disability from the School of Arts and Sciences and the School of Engineering and Architecture of the Central Campus of the University use in their learning process. Based on the results gotten by the questionnaire the 47% of hearing-impaired students use the Internet to search for more information related to the topic studied during the classes so they, with the help of an interpreter, can obtain good results on their evaluations. Another method for students to reinforce the classes are the professor's advisory who are requested to have an extra class to clear the doubts or concerns during the official classes. Some other students prefer to request help to their classmates.

The researchers verified the results from the questionnaire and related them with the objectives, and they deduced that classmates do not have any specific methodology implemented during and out the classes to help students with auditory disability on their academic learning process, regular students try to communicate with impaired-ear students to avoid the exclusion from the class team but no techniques are applied, regular students use body gestures and language to share comments related to the topic or their daily activities. On the contrary, interpreters have taken LESSA classes to help students with auditory disability on improving their academic level, the trainings that interpreters have taken are given as well, by Manos Magicas and within the interpreters they have meetings to continue developing the sign language they have acquired during the years of experience.

In summary, this research was conducted to verify and proof the strategies applied by professors at the School of Arts and Sciences and the School of Engineering and Architecture of the Central Campus of the University of El Salvador. Based on the results provided by the analysis of the instruments presented along the investigation, the research team proved that during the classes the students with auditory disability only had the support provided by the interpreters not by the professor as they are not trained on sign language and do not have techniques to provide the class adapted to the impaired students' needs, the results presented during the research contented the null hypothesis which stated as the lack of methodological strategies applied by professors during the classes at the School of Arts and Sciences and the School of Engineering and Architecture of the Central Campus of the University of El Salvador since neither standard nor regulated strategies are applied in class.

## VI. RECOMMENDATIONS

In order to help the academic development of Students with Auditory Disability, the following recommendations are proposed:

### 6.1 Recommendations for Authorities

- ✓ The research has shown that mastering sign language, Salvadoran Sign Language, is the most important requisite to communicate with hearing impaired students. To prevent this communication barrier, it is necessary not only to organize training in sign language to professors and administrative employees but also to encourage them to get engaged with the project.
- ✓ To promote Salvadoran Sign Language (LESSA) to regular students who attend classes at the University of El Salvador.
- ✓ To create specialized trainings to prepare professors about strategical formation and special adaptation in the curriculum to include and to help students with auditory processing disorder in their learning process.
- ✓ To inform professors when they are going to work with Student with Auditory Disability in their classes.
- ✓ To develop study workshop such a grammar lessons, for supporting this student population's learning process,
- ✓ To facilitate assistive technological devices like Frequency Modulation System, known as FM system, and visual devises with close captioning so professors will be able to present more interactive classes and deaf students will have access when necessary.
- ✓ To provide specialized technological resources to the Assistance Office for Students with Disabilities of the University and to prepare more personal to assist the students in the Assistance Office for Students with Disabilities; so that they will support deaf students' learning process.

## **6.2 Recommendations for professors**

- ✓ To attend sign language training and to learn Salvadoran Sign Language so they would be able to interact with deaf students and provide advisory sessions when the interpreter cannot be present.
- ✓ To make sure if they are going to have Students with Auditory Disability in their class groups in order to prepare interactive classes and to adapt the curriculum to deaf students' needs in order to teach and help them in their teaching-learning process
- ✓ To present visual aids such as captioning videos, diagrams, overhead projections, clear PowerPoint slides, handouts, transcript of audios while explaining classes or giving instructions.
- ✓ To make use of gestures and body language to have student's with auditory disability attention and emphasize in key words in order to make more interesting classes and to promote motivation in their students.
- ✓ To keep instructions brief and simple, during evaluations and homework assignments.

## **6.3 Recommendations for students**

- ✓ To be aware of the materials that professors use during the classes and their purposes paying attention and demonstrating a positive attitude for their learning purpose.
- ✓ To work with professors, interpreters and other students with auditory disabilities in a glossary of sign language for technical vocabulary they will use during the subject and Major; it will be helpful in the classes and they will help to future deaf students who will study at the University of El Salvador.
- ✓ To attend study groups in order to search more information, share ideas and discuss the topics studying in classes.
- ✓ To attend Spanish grammar lessons.



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## VIII. APPENDIXES

### 8.1 Appendix I



UNIVERSITY OF EL SALVADOR  
SCHOOL OF ARTS AND SCIENCES  
FOREIGN LANGUAGE DEPARTMENT

#### “CLASS OBSERVATION GUIDE”

**Topic:** Strategies Applied by Professors that Work with Students with Auditory Disability in the School of Art and Sciences, and the School of Engineering and Architecture in the Central Campus of the University of El Salvador, Semester I-2018.

**Objective:** To collect data about the pedagogical strategies applied by the professors and student’s performance during the class time in order to support the learning process of the students with auditory disability of the School of Arts and Sciences, and School of Engineer and Architecture.

School/Department: \_\_\_\_\_

Career: \_\_\_\_\_

Subject: \_\_\_\_\_ Classroom: \_\_\_\_\_

Time: \_\_\_\_\_ Professor’s name: \_\_\_\_\_

Student’s name: \_\_\_\_\_

Professors’ pedagogical strategies	
Indicator	Comments
Professor verifies if the student with auditory disability understood the topic given during the class time.	
Professor uses strategies to include the student with auditory disability in team work.	

<p>Professor makes use of the material that is accessible to the student with auditory disability such as:</p> <ul style="list-style-type: none"> <li>• Captioned videos.</li> <li>• Transcripts of audio information.</li> <li>• Diagrams</li> </ul>	
<p>Professor observes both, the student with auditory disability and the interpreter, while giving instructions or teaching during the class time</p>	
<p>Professor encourages student with auditory disability to participate during the class time.</p>	
<p>Professor presents lecture information in a visual format (e.g., chalkboard, overheads, PowerPoint slides, handouts, etc.).</p>	
<p>Professor uses more than one way to demonstrate or explain information.</p>	
<p>When a student with auditory disability has a doubt, professor pays attention to him/her and clarifies it.</p>	
<p>Professor interacts with the student with auditory disability with the help of the interpreter.</p>	
<p>Professor verifies if interpreter clearly communicates the instructions about the homework assignment to the student with auditory disability.</p>	

Professor assigns homework assignment accessible for the student with auditory disability.	
Professor verifies if student with auditory disability completes the homework assignment correctly.	
Professors keep instructions brief and uncomplicated as much as possible during any evaluation such as quizzes, presentations, mid-terms, individual works, etc.	

<b>Students' performance</b>	
<b>Indicator</b>	<b>Comments</b>
Students with auditory disability participate actively during the class time.	
Students with auditory disability participate actively in team works during the class time.	
Students with auditory disability interact with the professor during the class time.	
Students with auditory disability work with the rest of students in the development of the activities	

<p>Students with auditory disability pay attention to all instruction and information given by the professor during the class time.</p>	
<p>Students with auditory disability ask the professor for reinforcement if there is any doubt or lack of knowledge about any topic.</p>	
<p>If there is any doubt about the homework assignment, students with auditory disability ask to the interpreter to reinforce the instructions.</p>	
<p>Students with auditory disability are aware of their mistakes and correct them.</p>	
<p>Students with auditory disability complete all the activities assigned by the teacher during the class time.</p>	

Observer: \_\_\_\_\_

## 8.2 Appendix II



**UNIVERSIDAD DE EL SALVADOR  
FACULTAD DE CIENCIAS Y HUMANIDADES  
DEPARTAMENTOS DE IDIOMAS**

**ENCUESTA PARA LOS ESTUDIANTES CON DISCAPACIDAD AUDITIVA  
DE LA FACULTAD DE CIENCIAS Y HUMANIDADES Y LA FACULTAD DE  
INGENIERIA Y ARQUITECTURA.**

**Tema de investigación:** “Estrategias aplicadas por profesores que trabajan con estudiantes con discapacidad auditiva en la Facultad de Ciencias y Humanidades, y la Facultad de Ingeniería y Arquitectura durante el primer ciclo de 2018 en el campus Central de la Universidad de El Salvador”

**Objetivo:** Identificar las estrategias que los estudiantes con discapacidad auditiva implementan fuera del salón de clases para apoyar su proceso de aprendizaje.

### **Sección 1: Información sociodemográfica.**

**Indicaciones:** Por favor, complete la siguiente información de acuerdo a sus datos personales.

1. **Sexo:** Hombre: \_\_\_\_ Mujer: \_\_\_\_
2. **Edad:** \_\_\_\_\_.
3. **Facultad:** 1. Ciencias y Humanidades \_\_\_\_\_ 2. Ingeniería y Arquitectura \_\_\_\_\_.
4. **Carrera:** \_\_\_\_\_.
5. **Asignatura:** \_\_\_\_\_.
6. **Año que cursa:** \_\_\_\_\_.
7. **Año que ingreso a la Universidad:** \_\_\_\_\_.

### **Sección 2: Hábitos de estudio**

**Indicaciones:** Por favor, lea cuidadosamente las siguientes actividades y seleccione la casilla según la frecuencia con las que las realiza.

N°	Actividades	Nunca	Rara vez	A veces	Con frecuencia	Siempre
1.	Busco asesorías con el docente cuando lo necesito.					
2.	Busco información extra en internet, libros, artículos u otras fuentes para reforzar los contenidos vistos en clases o cuando tengo una exposición.					

N°	Actividades	Nunca	Rara vez	A veces	Con frecuencia	Siempre
3.	Busco apoyo de otros compañeros cuando no entiendo un tema visto en clase.					
4.	Asisto a grupos de estudio.					
5.	Práctico, completo y resuelvo ejercicios con el fin de entender un tema con más claridad.					
6.	Cuento con herramientas tecnológicas en mi casa.					
7.	Hago uso de las herramientas tecnológicas en mi casa para realizar tareas					
8.	Hago uso de las herramientas tecnológicas, que la universidad proporciona, para realizar tareas					
9.	Busco información actualizada sobre temas estudiados en clase.					
10.	Elaboro cuestionarios con el fin de estudiar para las evaluaciones.					
11.	Mis padres me apoyan para realizar tareas académicas.					

12. Otras estrategias de estudio que utilizo cuando tengo una evaluación



### Sección 3: Estrategias del profesor.

**Indicaciones:** Por favor, lea cuidadosamente las siguientes preguntas y respóndalas según la indicación.

13. ¿Qué tipo de actividades académicas (individuales y/o grupales) le asigna usualmente el profesor para realizar fuera del salón de clases?

14. Otras actividades que realiza fuera de las instalaciones de la universidad:

15. ¿Qué estrategias utiliza para realizar dichas actividades?

#### Sección 4: Institucional.

**Indicaciones:** Por favor, lea cuidadosamente las siguientes preguntas y respóndalas según la indicación.

16. ¿Siente que ha recibido apoyo de parte de las autoridades de la facultad?  
Si \_\_\_\_ no \_\_\_\_

Si su respuesta es afirmativa conteste a la siguiente pregunta. Si la respuesta es no, diríjase a la pregunta 18.

17. ¿Qué tipo de apoyo ha recibido?

18. ¿En qué aspectos ha visto reflejado dicho apoyo?

19. ¿La UES les facilita interpretes capacitados?

20. ¿Cuál ha sido el desempeño de su interprete asignado?

### 8.3 Appendix III



**UNIVERSITY OF EL SALVADOR  
SCHOOL OF ARTS AND SCIENCES  
FOREIGN LANGUAGE DEPARTMENT**

**Interview addressed to Edgar Nicolás Ayala, Vice-Chancellor of the School of Sciences and Humanities.**

**Topic:** Strategies Applied by Professors that Work with Students with Auditory Disability in the School of Arts and Sciences, and the School of Engineering and Architecture in the Central Campus of the University of El Salvador, Semester I-2018.

**Objective:** To know if there are inclusion policies created by the authorities in charge to train professors who work with students with auditory disability in the School of Arts and Sciences, and the School of Engineering and Architecture in the central campus of the University of El Salvador.

Date: \_\_\_\_\_ . Time: \_\_\_\_\_ .

Interviewer: \_\_\_\_\_ .

Interviewee: \_\_\_\_\_ .

1. Is there any background regarding students with auditory disability at the University of El Salvador specifically in the school of arts and sciences?  
Yes. Can you tell us more details about it?  
No. Why?
2. Do you happen to know how many students with auditory disability are studying in the School of Sciences and Humanities?
3. What do you know about the Inclusion Policy?
4. What do you do to support students with auditory disability's learning process?
5. Is there any agreement with schools of sign language or some other institutions to train professors who work with students with auditory disability?  
Yes.  
Since when have been this program applied? How it has been developed? Have you seen any progress in the students with auditory disability's learning process?  
No. Why?
6. Is there any program or workshops you have created in order to help professors who work with students with auditory disability?

## 8.4 Appendix IV

### Interview to Vice-Dean of the School of Arts and Sciences.

1. Is there any background regarding students with auditory disability at the University of El Salvador specifically in the school of Arts and Sciences?

Yes. Can you tell us more details about it?

No. Why?

What I know during the administration of Ana Maria Gloria de Alvarado, she promoted a new policy for dealing with students with some kind of disabilities and a new policy was written and approved by Consejo Superior Universitario and that was like studying on this topic; not just people that cannot see but there are some other disabilities among student's population.

The challenge is for our School, 97% or 98% of the students with auditory disability are still registered on our Majors, they come to School of Arts and Sciences and only 2% of students with the auditory disability they go to other schools. So, we usually talk about the University but the challenge and the topic are concentrated here in the School of Science and Humanities.

2. Do you happen to know how many students with auditory disability are studying in the School of Arts and Sciences?

We had students population with disability between 60 or 90 students every year, we had had a lot of troubles with teachers because the first problem is that they are not informed of students' Rights, there is a law that protects students with those characteristics, professors are not trained to work with this type of students, they feel some kind of not well prepared to deal with this student population.

Last semester we had around 60 students with all type of disabilities. Some of them have been dropping out as they take more subjects. They are highly vulnerable not just because of the disabilities, often they come from low class families, moving from their homes to the University is difficult and sometimes they do not have money to pay for transportation or food.

The economy is affecting their families, in that way we should aim the budget to provide scholarships in order to keep them study at the University. Students cannot continue studying as they do not have the support, the money, we have less students than before due to the economy and lack of support.

There have been some troubles with professors too. Some of them have gone to Defensoria de Los Derechos de los Universitarios because there are some misunderstandings between professors and students. Students with auditory disability are very sensible and start complaining, they have to deal on working with this type of students.

### 3. What do you know about the Inclusion Policy?

Of course I do, based on the National Law that was passed, the University has designed the policy “Política de Educación Inclusiva”, Ana Maria Glover de Alvarado was fully immersed in this idea, she also has some very good projects, she had in mind building an infrastructure for the students population to be placed in that area but since she finished the administration, the topic has not been addressed with the same intensity as she did. We do have the papers, we know what they say and turning that into reality there is a lot to do.

### 4. What do you do to support students with auditory disability’s learning process?

Why is that from the side of the Government they just passed a new law saying that students with disabilities can register and attend classes with regular students? Saying that and making that mandatory does not prepare professors to work with this kind of student population so taking that as a reference on our administration we have made some efforts.

We have invested time and money on training professors on Sign communication, right now there is a training going on, intermediate level, around 20 professors have already taken basic level and now they are taking intermediate level and the idea is that we are going to offer advance level on sign communication and this training is being given by someone from Manos Magicas.

Manos Magicas is an institution that is specialized in this area and the trainer is specialized in Education and Sign Language as she is mute and deaf, she is native. Teachers have to struggle to communicate with students with auditory disability.

I will say that we are making some progresses in that area, we are helping teachers to communicate students but regarding methodology we do not have much. We also need to equip schools with useful devices for students with auditory disability like: tablets and other devices for listening, there is a lot to do in this area. Our greater effort is focused on getting people to understand each other and that is the beginning.

5. Is there any agreement with schools of sign language or some other institutions to train professors who work with students with auditory disability?

Yes. Since when has this program been applied? How has it been developed? Have you seen any progress in the students with auditory disability's learning process?

No. Why?

We are training professors, but we are also training Administrative employees and mainly people working at the Academic Administration and some other offices because students go to these places to do paper work. It was a training for regular students for learning sign language, so we are investing on Students, Administrative workers and professors. Every semester we donate a kit with notebooks, T-Shirts and other basic utensils Students can use in classes, we have been donating some things they can use in classes. We have also instructed head of Schools that when they plan their classes and have students with disabilities such as students on wheelchair that those classes have to be programmed and developed on the first floor.

The University has invested on infrastructure, in some buildings we have opened some cafeterias for students with disabilities, there are some special areas and entrances for students with different disabilities. It is not a big deal but we are better off than we were 5 or 10 years ago students that could not see we had problems to walk down stairs, now you can see special places to move around, parking lots that are assigned for students with disability.

The University and the School of Science and Humanities have taken some steps to help students but the worst is that there is not budget to train all professors. I was talking to my colleagues of Language Department that we are Super teachers, we have to know how to use technology, how to teach the language, we have to know about safety, we have to know the language, we have to take care about the environment, we have to deal with students with disability. As well, we have to master several areas and it is not just to be in the classroom and provide a regular class, that is a big challenge for professors, mainly in our School. I think, students with auditory disability come to our Science and Humanities due that they expect to be treated well in our classrooms because they do not go to other Schools. We have lot of students in School of Arts, Education, Languages, Psychology and Social Work.

The University is investing money in paying interpreters but they are not enough because student's population is growing. Rosario, in charge of this Unit, she has tried to help students by providing some support and doing work assignments because they have a small library with basic equipment, as computers. Korea donated a machine for reading and printing documents in Braille which is expensive. We are improving little by little but we do not have a specific budget for investing in this project and we need a well-designed plan to deal with this population, we are trying to do our best we can.

6. Is there any program or workshop you have created in order to help professors who work with students with auditory disability?

We are working on a curriculum update and in that updating we are including “Ejes Transversales”, we are going to be taught as seminars and that is a plan beginning in 2019. On the curriculum update all is mandatory by the law or that the University has taken over as part of our philosophy.

We have 2 homework assignments, one is to train professors that work with this student population and the second is to provide more equipment to develop the classes. We have done a lot in communication and moving ahead in this topic. You can see a lot of professors and administrators already communicating by sign language.

Professors are interested because they feel the limit on communicating with them. Professors from School of Arts are willing to learn the sign language.

Professors have learnt from experience how to evaluate students with auditory disability. Teachers try to meet the circumstances, colleagues prepare material for classes, they provide tutoring, prepare different test adjusted to the disability, they prepare audios and visual aids. Some professors said that they have been trained to teach regular students, some others adjust to the disability and there are a lot of complaints. Our professors should be trained to deal with students with disabilities, we have a training going on with 20 professors on sign languages class, the training is free, we hope with the steps the University is moving ahead in the future more and more can be done for this population.