ACCESSIBILITY IN THE UNIVERSITY ENVIRONMENT AND ITS PERCEPTION BY STUDENTS WITH DISABILITY

UNIVERSITY AND DISABILITY OBSERVATORY

ONCE Foundation

Universitat Politècnica de Catalunya -UPC BarcelonaTech

ENGLISH EDITION

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Edited by the University and Disability Observatory – UDO: an entity made up by ONCE Foundation and the Accessibility Chair of the Universitat Politècnica de Catalunya - BarcelonaTech. September 2010

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Co-funded by the European Social Fund, within the frame of the Operative Program against Discrimination.

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ISBN: 978-84-7653-901-9

PROLOGUE

Through the University and Disability Observatory, the ONCE Foundation and the Universitat Politècnica de Catalunya – UPC BarcelonaTech pretend to contribute their knowledge, experience and effort with the aim of working for the equal opportunities in the entire university community. The three quotes from Albert Einstein written at the end of these lines synthesize the spirit of the Observatory. Before such a complex scene, each group in the university gathers an essential experience which complements each other, and all views together allow a closest approach to reality. For that reason it is necessary to precede the analysis from multiple perspectives, synthesizing and filtering in a coherent way all the information sources. This knowledge let us identity which are the points that need improvement and then propose actions that help achieve a university for all.

The analysis of both the accessibility in the university environment and its perception by students with disability follows that principle. The will of the University and Disability Observatory is that the contributions raised in this study be useful for the university's improvement processes. The OUD is at the disposal of the university in order to join the efforts for continuous improvements of the teaching quality.

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Universal Accessibility Director From the ONCE Foundation

Dr. Daniel Guasch Murillo

Academic Director of the UPC Accessibility Chair.

"We all are very ignorant. What happens is that we not all ignore the same things."

"If you are looking for different results, don't keep doing the same thing."

"There is a driving force more powerful than steam, electricity and atomic energy: the will."

Albert Einstein

University and Disability Observatory

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ACKNOWLEDGEMENTS

We thank the invaluable collaboration of all participants in this study: universities, students, staff care services to the student with disabilities, disabled associations and university partners. Thanks to the commitment and effort of all is possible to move towards an inclusive and accessible university environment.

Thanks to:

The universities that have participated since their collaboration in identifying the current state of accessibility denotes an interest and implication by them in getting the equal opportunities for all.

The interviewed students for the time they have invested in this research, for explaining their perception of the university and make us confident of their experience. We hope this study, fruit from that joint collaboration, will contribute in getting a university for everyone.

The Student Disability Service staff, for having found time to answer our questions. Their contribution has been of great value and we encourage them in their daily efforts to provide solutions for their students.

The associations of people with disabilities. Having their experience and their views has enriched and improved our understanding of the situation of people with disabilities at the university.

To our collaborators for their comments, suggestions and valuable contributions.

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ABBREVIATIONS

Abbreviation	Explanation
UDO	University and Disability Observatory
UPC BarcelonaTech	Technician University in Catalonia: Universitat Politècnica de Catalunya
CETpD	Centre for the Technological studies for assisting dependency and the autonomous life. *(Centro de Estudios Tecnológicos para la atención a la dependencia y la vida autónoma)*
INE	Instituto Nacional de Estadística - National Statistic Institute
ICF	International Classification of Functioning
R+D+i	Research, development and innovation
DALCO	Ambulation, apprehension, location and communication (*Deambulación, Aprehensión, Localización y Comunicación)*
LISMI	Spanish law for the social integration of people with disabilities
LIONDAU	Spanish law for the equal opportunities, no discriminations and universal accessibility.
PC	Personal Computer
NGO	non-governmental organization
AP	Additional Provision
CERMI	Spanish Commission of representatives for people with disability.
CRUE	Chancellors conference from Spanish Universities
CEAPAT	Centre for the personal Autonomy and technical support.
POU	Urban planning framework
TAW	Web accessibility Test
UNED	Universidad Nacional de Educación a Disatancia. (Distance education University)
W3C	World Wide Web Consortium
WAI	(Web Accessibility Initiative) from World Wide Web Consortium

PRESENTATION OF THE OBSERVATORY ...

The University and Disability Observatory (UDO) focus its aim at detecting accessibility problems in the Spanish University. Its objectives are: to know what factors influence the choice of the student with disability on going or not to the university; what kind of information is necessary to support that decision; what barriers are still present at the universities; how to improve their services and benefits; how the teacher and mates behave; what study preferences are available depending on the type of disability; what job opportunities or other paths students with disability have once they got their degree; why academic failure and drop-ups occur; what experiences and perceptions they have got from their university life, etc. All these are study fields in the UDO.

The aim of UDO is to know and analyse the present and future situation that students with disability meet in Spanish Universities. Then, UDO, through annual researches about people with disability, the universal accessibility and the design for all in Spanish Universities, pretends to become a tool for knowing, disseminate and contribute element of diagnosis as a support for efficient actions to improve the entry of people with disability to the University and the professionalized labour market.

The UDO is a joint initiative from the **ONCE Foundation**, for the cooperation and social integration of people with disability, and the **Universitat Politècnica de Catalunya UPC BarcelonaTech**. Each entity brings their knowledge and proven experience in their respective field of actions: people with disability and university.

The UDO is then a team co-managed by the Accessibility Management form the ONCE Foundation and the Accessibility Chair of the UPC **BarcelonaTech**, which is also financed by the Operative Program against Discrimination from the European Social Fund.

The **ONCE Foundation,** with an experience of more than 20 years, has surrounded itself of actors necessary to carry out its main objective: the realization of universal accessible programs, promoting the creation of environments, products and services globally accessible and the realization of labour integration program, training and employment for people with disability.

For this purpose, being part of the UDO means keeping creating synergies to guarantee the process of change towards a more accessible university with a standardized presence of people with disabilities in the professionalized labour environment.

This way, the **Accessibility Chair: architecture, technology and design for all** from the UPC **BarcelonaTech**, has the objective to facilitate that people, independently to their abilities, can access in an autonomous way to any environment, be it architectonic, technological or of knowledge, acting transversally In the university areas and the socio-economic tissue that surrounds it. It also aims at knowing the situation of people with disability in the Spanish University.

The Accessibility Chair of the UPC **BarcelonaTech** was founded in 2003 and it was constituted as the first Accessibility Chair in Spain. It deals accessibility issues in all its

aspects and acts from inside the university, from both the academic and the RDi activity, providing the society all its research and teaching knowledge.

In this context, the UDO starts its path of knowledge and dissemination with the publication of its first research report, titled '*Accessibility in the university environment and its perception by students with disability*'.

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EXECUTIVE SUMMARY ...

The general objective of this first study of the University and Disability Observatory is to make an exploratory approach on the status of accessibility in the Spanish university environment under a double perspective: the compliance of the accessibility regulatory framework and the reality lived by students with disability.

An initial question raises the approach of the study: regarding the human and material efforts invested in achieving accessibility in the Spanish university environment in the past two decades, have they been accompanied to a corresponding increase of population with disability that has obtained higher studies?

In this context, the different conditions and aspects of accessibility (both by objective and subjective perception) are the object of study. The *law 51/2003 of equal opportunities, no discrimination and universal accessibility of people with disability* defines the two basic principles this report is based on in terms of 'universal accessibility' and 'design for all'. For fulfilling these principles, there are considered different physical, technological and social areas that constitute the university context: spaces, transport, communication, information technologies and curricular accommodations. In the framework of this study, it is understood as non significant curricular accommodations the virtual spaces and the services offered by the same university.

The method has a double perspective. On one side, it gathers objective data from the people responsible for each university centre and from the direct observation of the ground; on the other hand, it analyses the perception that university students with disability have on the university and their accessibility conditions. Both approaches complement each other when comparing and reaching conclusions.

The sample, of qualitative data, centres in public universities, consisting of 18 university centres selected by different criteria of size and geographic distribution. A codified questionnaire was designed and applied to five of those universities to which there was carried out an observation of the ground and also to 19 selected students with different types of disability in the age range between 18 and 32 years.

Among the conclusions reached, it is worth noting that it can be observed a direct relationship between the accessibility level in a university and the autonomy level of their students. Conversely, the study shows that the students interviewed have renounced to certain degrees or given up with their studies in specific universities due to the poor or inexistent accessibility in them. This conclusion is qualified with a contradictory observation: there are universities with accessibility shortcomings detected, which students have also perceived but claim they can manage with a degree of satisfaction. Among the factors that may explain this, there are the students' lack of knowledge of the accessibility standards and practical aspects of usability, which involve basic aspect on facilities and university services; the social and family support; the conviction or habit of overexerting in order to achieve goals; the development of strategies for poor accessible environments; and the comparison to other educative spaces that are in worst accessibility conditions.

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INTRODUCTION ...

According to *Statistics of University Teaching in Spain (Estadística de la Enseñanza Universitaria en España)* published by the National Institute of Statistics (INE), the study year 2007-2008 1,498,465 students enrolled the university. It is estimated from data from the Disability Survey, Personal Autonomy and Dependency Situations (AGE) in 2008 that about 1% of these students (about 15,000) had some type of disability. These 15,000 university students with disabilities represent 13.1% of the nearly 115,000 people with disabilities of more than 6 years old that in 2008 were doing some type of study.

Despite the fact that the current regulatory framework is increasingly inclusive and that it includes equal opportunity values, the university is still an educational space where it is difficult to access to by people with disability.

One of the key reasons that students with disability have a low presence at the university is because most of them give up their training before finishing secondary studies. There is still an important lagoon in the transition between compulsory education and post-compulsory education, a bridge to higher education.

As highlighted by the Survey on Disability, Impairment and Health (*Encuesta sobre Discapacidades, Deficiencias y Estado de Salud)* 1999, INE, 2002a, the relative presence of students with special educational needs in primary and secondary compulsory education (ESO) is similar. However, this number is reduced in professional training cycles or in baccalaureate. Years later, in 2005, the *White Book about University and Disability* (Peralta, 2007) provided the following data: students with special needs in baccalaureate summed a 0.2% of the total students, conversely to the 2.1% in the primary education or the 1.8% in the ESO (compulsory secondary education). In higher education the *disappearance* of the population with disability in the educative system is even more evident.

The implications of this absence in the university transcend to the educational aspect and affect negatively to the chances for completing the transition towards adulthood, in particular, to employment access. A minor level of training means less personal and social opportunities for accessing to quality jobs, with higher salaries, more stability and with options for being promoted.

It is observed, then, that one of the factors that traditionally has got a greater influence in the social exclusion of people with disability is their low presence in education and training, mainly at higher studies. The EDAD data from 2008 confirm that there is a strong correlation between the level of studies and the employment status of people with disability. Illiterate people with disability that are at the age of working have a 3.7% employment rate; the ones that have not completed those primary studies have a 14%; whereas the people with disability that have achieved university studies have an employment rate that reaches 56.1%.

These figures paint a paradoxical situation: the efforts and progress at a legislative level, together with the accessibility improvement in physical and virtual settings have not implied, not so far, a significant increase in the presence of students with

disabilities or even an approach to the rates of the general population in higher education.

In order to understand this context better and facilitate analysis elements for improving the inclusion of students with disability in the university education, it has been raised this research: "*Accessibility in the university environment and its perception by students with disability".* The starting point of this report, after defining the object of study, consists on observing basic references in the conceptual and regulatory framework so to appropriately focus the issue. Once the objectives and method are defined, there are presented the main results on a double approach, which structures the empirical study with an exploratory quality. The study focuses, on one side, in knowing the level of accessibility in the Spanish universities; and on the other side, contrasting that data with the perceptions by a sample of university students with disability, gathered by means of a qualitative study. Lastly, it is included a relation of conclusions starting by the main diagnosis data, the study lines and possible actions for improving the situation. The annex contains both, regulatory references on the matter and the design of the techniques and complementary results obtained.

The university sample is made up of public institutions because they are the ones that must guarantee the access of people with disability to the university education. The selection criteria have considered variables such as geographic dimension or location among others, so this way, it is intended to represent different types of existent public universities in the country.

The survey has covered a total of 18 Spanish public universities, gathering objective data through a detailed questionnaire that explores different aspects related to accessibility and design for all. It also addresses issues related to curricular accommodations (non-significant) and the ways these universities manage their progress in this field. To that end, the referents that serve as a comparative come from the regulatory framework in force so to obtain a comparison between "being" and "ought".

The study of the students' perceptions has considered subjects with different types of disability, trying to represent different situations and environments. 19 interviews were held to students from 12 different universities. The content of those interviews starts by approaching the pre-university stage and the choice of the degree to then focus on study practice at the university. It includes the interaction with the environment and the different dimensions of accessibility, and ends up approaching their job expectations and their vision of the future. To complete the diagnosis, there were visited 5 universities in order to have a direct observation of the reality.

The double scope of this research, on one side based on gathering objective data and on the other, on the perceptions of the accessibility state and the ability to manage in the university, offers two different and complementary lines in both the results and analysis, and the conclusions. Both approaches to the object of study have enriched each other.

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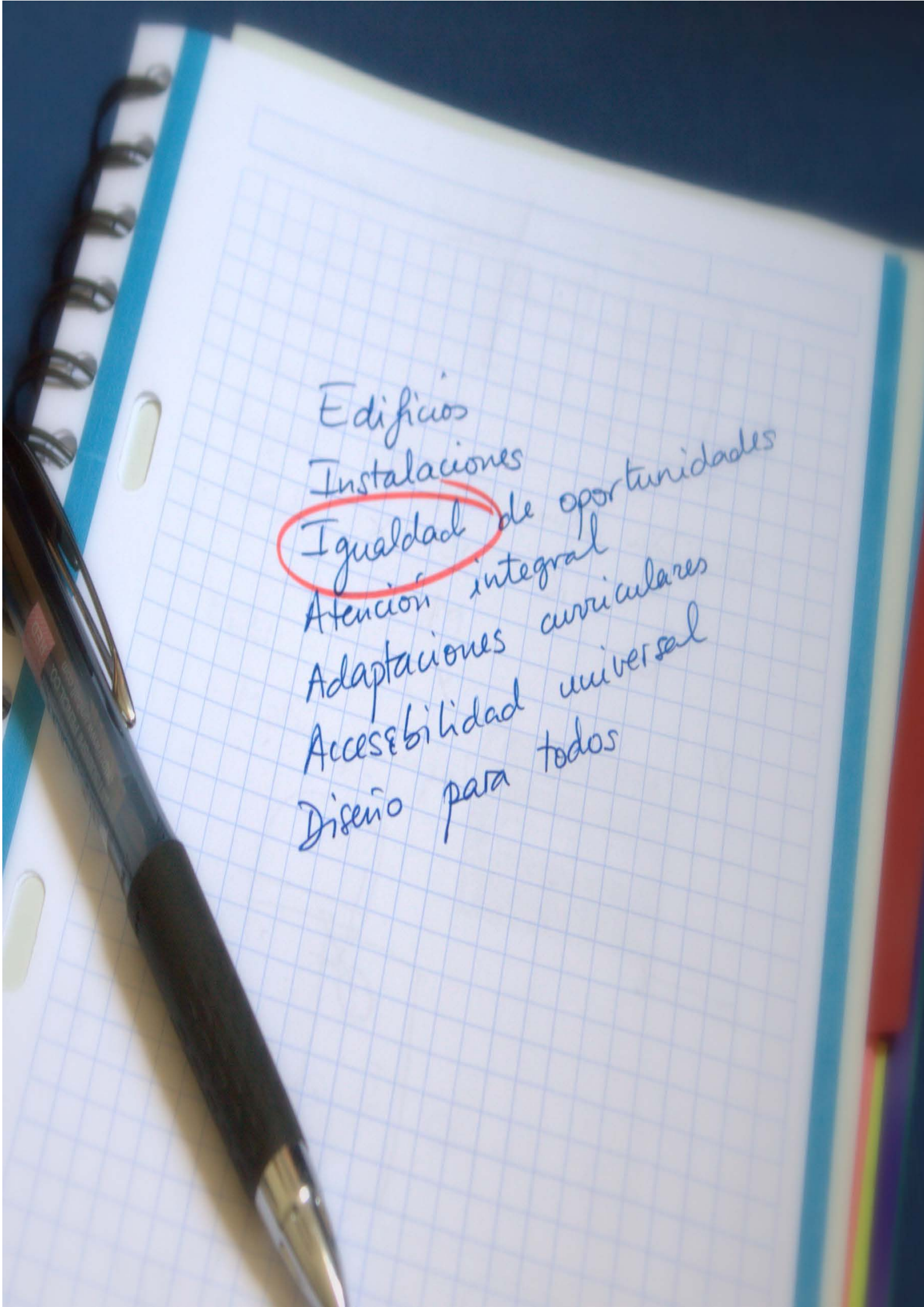
In order to carry out this study, there have participated experts in the area of accessibility and the university. In the area of accessibility, it has also collaborated Vía Libre, a company from the Fundosa Group that, from the project area, works in favour of the universal accessibility. Its extensive experience in developing accessibility plans is essential for its participation in the research team of this first UDO study.

In the area of the university, it collaborates the Centro de *Estudios Tecnológicos para la atención a la dependencia y la vida autónoma* (CETpD)- (Centre for Technological studies for the assistance to dependency and autonomous life, from the UPC. It is made up of a team of highly qualified researchers, including technologists that work together with psychologists and sociologists cross-curricularly. Specifically, this social team is integrated into the 4all-L@b, a division of the CETpD-UPC, committed to advancing in the knowledge of how do they live, how would they like to live and how would technology help these people who, due to their disability or other circumstances such as aging, can not have a full desired autonomy. This Centre have experience in conducting sociological studies to know more about the life styles and aspirations of different groups with disability, which is determinant for their contribution to this UDO[1] study.

[1] Since the university has also enjoyed the cooperation of the teaching staff from the School of Psychology, Education and Sport from the Blanquerna Universitat Ramon Llull. Their experience, from the field of university management, particularly from counselling and support services to students with disabilities, enriched in a great extent, the study here presented.


Edificios
Instalaciones
Igualdad de oportunidades
Atención integral
Adaptaciones curriculares
Accesibilidad universal
Diseño para todos

DELIMITATION OF THE SUBJECT MATTER ...

Progress in legislative and planning framework, from the enactment of the first comprehensive law on disability in 1982 (LISMI), to the approval of the *III Action Plan for people with disability 2009-2012* (Ministry of Health and Social Policy, 2009), including also landmarks such as the Second Plan of Action for Persons with Disabilities 2003-2007 (IMSERSO, 2003a), the National Accessibility Plan (IMSERSO, 2003b), or the Law of Equal Opportunities, Non-Discrimination and Universal Accessibility people with disabilities in 2003 (LIONDAU), has set up an improving process in the access and the progress of the person with disability in the general education system. The Law of Universities from 2007 includes contributions that affect the access to the university, the entry in centres, the permanence and the performance of academic rights of students with functional diversity, some of which specifically refer to accessibility in its different dimensions (Usero Martinez, 2008).

Under these laws, amendments and proposals, in order to address the needs of people with disabilities, the university should have integrated four essential points into the current educational system reality:

- Accessibility of university buildings, installations and facilities, including also virtual spaces, services, procedures and the provision of information to all people.
- Equal opportunities of students and other members with disability from the university community, outlawing any type of discrimination and implementing positive measures to ensure full participation in the university context. Therefore, the University must provide the necessary means, support and resources that ensure true and effective equal opportunities in relation to the rest of the people that are part of the university community.
- The *comprehensive* care of people with disability. A comprehensive care referenced in a "Program for assisting Students with Disability" that covers basic fields such as: 1) orientation, monitoring and support; 2) use of alternative and augmentative systems for accessing to communication and information materials in accessible formats or, when appropriate, with personal support; 3) scholarships and financial and social aids for the study; and 4) removal of barriers of all kinds.
- Non-significant curricular accommodations necessary in every educational plan according to the specific needs of students that require them. Academic tests for knowledge assessment must be accommodated in procedures, time and form according to the special needs that students with disability may have. Parallel, there must be training plans for the teaching staff related to educational methods to assist students with disabilities.

The improvements started being implemented – yet in deployment phase- have not had the desired impact conversely to the current increasing university population with disability. The invested efforts have a limited impact on the decision of students with disability when choosing to go to the university. This *absence* of students in the higher

education system means for those people's life trajectories a renunciation to a good labour market access path- the university degree- to social participation and also the occupation of influence positions and higher incomes that allow them to acquire the necessary conditions for living fully autonomous.

In this context, **accessibility, in their many forms and facets** (both objective and subjective) **is the object of this study**. The law 51/2003 for Equal Opportunities, Non-Discrimination and Universal Accessibility for Persons with Disabilities defines the two basic principles that guide this report (and articulate its object) in the following terms:

- "**Universal Accessibility:** the condition that environments, processes, goods, products and services as well as objects or instruments, tools and devices must meet in order to be understandable, usable and playable by all persons in a safe and comfort condition and as autonomously and naturally way possible. It presupposes the strategy of "Design for All" and is understood without prejudice of the reasonable adjustments to be taken. "(Article 2b)

- "**Design for all**: the activity by which it is conceived or projected, from the origin, and whenever it be possible, environments, processes, goods, products, services, objects, instruments, devices or tools so that they can be used by everyone, to a greatest extent possible".(Article 2.c)

However, which are those conditions in the University setting? Currently, it is considered that accessibility at the university should be based on a wide definition that covers heterogeneity in the physical, technological and social conditions that characterize the university environment: spaces, transport, communication, information technologies, non-significant curricular accommodations, virtual spaces and services of all kind offered by the university; including also those spaces beyond the classrooms such as the coffee bar, exhibition rooms, spaces for sports, leisure and rest (balconies, gardens, etc..), and university residences. Thus, the Royal Decree 1393/2007, *from October 29, which establishes the management of official university teachings,* gathers in its section 7, related to *Material resources and services*, that the universities must justify that:

> "the material means and services available (spaces; facilities; laboratories; scientific, technical or artistic equipment; library and reading rooms; new technologies; etc..), are adequate to ensure the development of training activities planned, noting the accessibility criteria and universal design for all".

Since in 1978 the Instituto Nacional de Educación Especial (Special Education National Institute) developed the *National Plan for Special Education*, there has come a brief but intense way in adapting the educational treatment based on the difference to formulas where the principles of standardization and integration provide the philosophical and ethical underpinning towards the change. It is true that such way of doing has been applied more intensively and manifestly in the so-called pre-university

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level, where there has been advanced a lot, conversely to the actual state of the university education.

Regarding the accessibility of the technologies from the information society, in particular of websites, this is a requirement that portals from public administrations must meet from December 31st 2008; at least at a medium level of the accessibility criteria in the generally recognized content. This was established by the Law 57/2007 of 28th December on Measures for Promoting the Information Society (see Annex 1). These generally recognized criteria are the *Web Content Accessibility Guidelines* (WCAG), which explain how to make Web content accessible for people with disabilities. These guidelines are the result of agreements and standardization coming from the highest authority in the field of Internet accessibility, the *World Wide Web Consortium* (W3C); in particular from its working group *Web Accessibility Initiative* (WAI). In 1999, WAI published the version 1.0 of their Web Accessibility Guidelines, an internationally accepted reference. In December 2008 WCAG 2.0 was approved as an official recommendation.

At a university level, in line with the consideration of both, what is being debated today and the current regulations, it is estimated that for knowing whether an environment is accessible there must be considered the following aspects:

- Preliminary: accessible transport to the campus or correspondent building, or if necessary, intercampus transport (in the need of moving to buildings or services that are disseminated)
- Accessibility inside the building and their different floors (ramps in the main entrance and other general accesses, exit doors, lifts to the different floors, etc.)
- Accessibility in the different facilities and rooms of the building: classrooms, assembly hall, library, laboratories, complementary services (secretary, toilets, coffee shop…)
- Accessibility in virtual channels supported on the Information and Communication Technologies (ICT), which, in a priority or complementary basis, enable the university to process and manage services (pre-registration, registration, consultation and administrative, reserve library materials or laboratory), or to focus on educational-related issues (content, resources, activities…), or both .
- Accessibility to the studies: laptops, whiteboards, video camera connected to a PC, FM transmitters, translators, voice synthesizers, audio-text transcription, tablet PC, data scanning service, provision of class notes previous to class, etc. And, in general, any grant and technical adjustment to eliminate possible barriers for accessing to the content being taught, participation in activities, use of methodologies and resources implemented, to the realization of the

assessment without discrimination taking into account the existent procedures or channels for doing so.

- Accessibility to complementary or extra activities (leisure, sport, cultural ones)

Many of these elements have been made accessible. However, there are many young people with disability that, despite those changes that provide more facilities, do not get into the university context. What is the reason then?

In order to answer to this, it is necessary to include objective aspects with a subjective dimension of accessibility. That is, including the users' perception of the compatibility of the environment with their characteristics and their aspirations[2].

For all these reasons, in the present study there have been taken into account three aspects that are considered components that make up the concept of accessibility of the university environment:

- First, accessibility is defined as the absence of physical and architectural barriers for any type of disability, whether within the same university or campus, and along the way students must make to get to it.
- Second, accessibility is defined as the possibility for any student with any disability to have access to materials and technical resources needed, including those related to ICT (the offering college or associations, organizations and foundations) in a satisfactory manner.
- Third, accessibility in the university environment is understood as the possibility for students with disabilities to have available the personal assistance they need during their university life and that it be satisfying.[3]

Therefore, when considering the university accessibility it is also necessary to examine the objective conditions of accessibility, to know the perception that students have about accessibility from their everyday personal experience.

[2] In this sense, the White Book about University and Disability already notices that the mismatch between the institutional, associational and academic effort, and the degree of access and integration of people with disability at the university comes from the impact of the objective conditions in human and social realities: " The resistance to a great change and progress can proceed over erroneous conceptions and attitudes rather than objective causes -norms, economical resources or structures-." (Peralta, 2007, p.76).

[3] This personal assistance can be obtained, depending on each environment, through special services for assisting disability; associations that in some way or other are connected with these services; volunteers for students with disabilities; support scholarships and tutors; administration and services staff; and academic staff.

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The actions needed to achieve appropriate objective conditions of accessibility can be grouped into four main lines which are included in the paragraphs and items from the questionnaire sent to the universities:

- *Removal of barriers* (physical, communication, attitude), that impede or make difficult that people with disability access to centres or educational programs.
- *Regulation of positive discrimination measures* for the access to studies by reservation of seats, exemptions or specific complements.
- *Accommodation of the educational organization in all its aspects* (regulations, training programs, methodology and didactic resources, etc) so that, while keeping the general educational objectives and quality for the level and the centre, it be also considered the special needs of students with disability.
- *Establishment of supplementary aids and services* needed to give appropriate answer to the needs of people with disabilities.

As previously stated, the study of the state of the accessibility is complemented by the analysis of the perception that young people with disabilities have on the university environment. The interest in this type of analysis, focused on the perception that students with disabilities may have of the university -understood as reception, processing and interpretation of the information from the environment-, is born from the will to contribute to the advancement in equality for all through the study of this poorly explored dimension.

Within the Spanish context, there are recent works that have studied the university environment in relation to students with disabilities, focusing on the analysis of the facilities physical accessibility and the impact that technical, human and social resources have on the enrolment, graduation and labour insertion of students with disabilities. The *White Paper about university and disability* (Peralta 2007) (hereinafter White Paper), the study *Educational attention of people with disabilities*, a monograph published by CERMI (Cayo, dir. 2004), *the Survey on Disabilities, Impairments and Health State* (EDDES) of 1999 (INE, 2002a) and from a general area, the plug of the Labour Force Survey for the second quarter of 2002 (INE, 2002b) developed a descriptive map of the current status of the disability-college relation.

Regarding Info-accessibility there are highlighted reports carried out by the Info-accessibility Observatory of the Discapnet[4] web portal, which offers a recent diagnoses of the compliance of web accessibility by the Spanish universities, as well as a

[4] Discapnet. *Informes de infoaccesibilidad* [online]. Madrid: Discapnet, 2004-2010. Last visit: 26 octubre 2010. Available at: <http://www.discapnet.es/Castellano/areastematicas/Accesibilidad/Observatorio_infoaccesibilidad/informesInfoaccesibilidad/Paginas/default.aspx>.

guidance to achieve the accessible design for all people in this field, according to the W3C/WAI[5] recommendations.

In particular, the White Paper is a very good source to describe the representation of people with disability in the university, and the resources deployed by the universities to receive them.

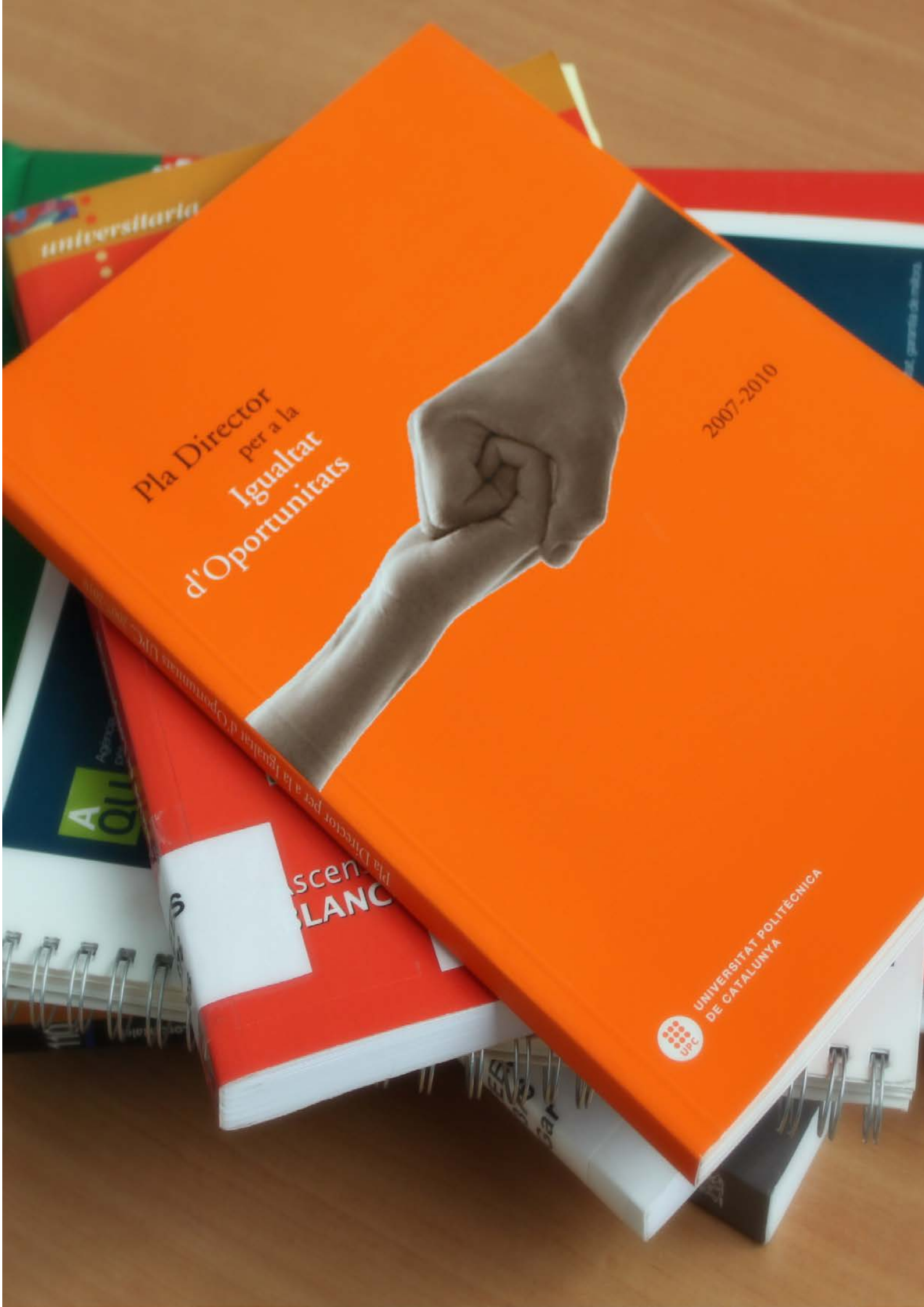
Thus, this research examines how these young people perceive the university environment and what conditions must prevail to become a feasible choice in their life trajectories. In this sense, this research is an exploratory investigation, because, according to the review carried out, there are no studies that give a voice to young people with disabilities to identify why they see possible the realization of a university degree, which are the difficulties they meet or what hinders their possibility of taking advantage of their studies and life at the university.

This is a qualitative approach in the university-accessibility relationship regarding the following questions: What are the educational expectations of students with disabilities? What are their motivations for learning, studying? What do you consider you can offer the university environment as opposed to others? How do they see themselves in this area and how are the relationships they establish with the environment they interact with? What are the barriers and what are the facilities they have? How would they improve it?

The need to answer these and other questions was what motivated this study proposal: a first qualitative approach to explore the perception of the university environment that disabled young people have and identify, through the same process, the needs and proposals made so that organizations and institutions involved can focus their actions from the knowledge of what they point out as a priority.

[5] *W3C/Web Accessibility Initiative* (WAI). [online]. Cambridge, MA: WAI, 2010. Last seen: 26 octubre 2010. Available at: <http://www.w3.org/WAI>.

UNIVERSITY AND DISABILITY OBSERVATORY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THEORETICAL FRAMEWORK ...

As a first step of the study, the following sections deal with basic concepts, elements that allow us to define the following analysis. On one side, there are included contemporary notions regarding disability and universal accessibility in their different dimensions; also a basic approach to the normative references that set a framework; and the "should be" of equal opportunities in participation. All this is contrasted with the reality surrounding the accessibility through this exploratory study.

CONCEPTUAL FRAMEWORK

Throughout the study, a number of interrelated key concepts are presented, which work from different perspectives. Consequently, there is the need to clarify the conceptual framework and provide context element that allows a framing of the analysis.

Disability: interaction with the environment

During the last decades, there have be seen a significant change in the concept of disability. Traditional approaches focus on disability as a "personal" problem directly caused by a disease, a trauma or other health impairment that requires medical care and rehabilitation in the form of individualized treatment. Now, these approaches have been replaced by others whose focus is on based on the integration of people with disabilities in the society, considering that disability is not an attribute of the person, but the result of a complex set of conditions, many of which are caused or aggravated by the social environment.

These new approaches are articulated around the idea that addressing the situation of disabled people is essentially a human right. They bring out the need of identifying and eliminating the barriers that impede the equal opportunities and full participation of these people in all aspects of life. Together with these approaches light has been shade to the believe that if we change the way we organize our societies, we can significantly reduce or even eliminate the difficulties and barriers that persons with disabilities and many other groups have to face in order to carry an independent and fulfilling live.

The current view of disability does not deny the medical-biological background, but asserts that what matters is the role that, based on the expression of that background, the environment characteristics plays, and in a very special way, those environments created by the human (housing, schools, universities, workplaces, urban spaces, transportation, technology equipment, media ...). The disadvantages experienced by people with disabilities that, in practice, determine their condition of “disabled” comes from the interaction between their personal characteristic (impairments, limitations, functioning abilities…) and the environment.

This view of the disability has inspired the International Convention on the Rights of Persons with Disabilities, been passed by the General Assembly of the United Nations on December 13, 2006, signed, ratified by Spain and fully incorporated into our legal system to be in force in May 2008 after the deposit of the twentieth instrument of ratification. The main objective of the Convention consist on moving the internationally recognized rights to specific areas that allow the identification of means to eliminate barriers faced by people with disabilities, and thus achieve the comprehensive recognition and full exercise of those rights on equal opportunities in the different spheres of social life.

> "*The purpose of this Convention is to promote, protect and ensure the full enjoyment and equality for all human rights and fundamental freedom of all people with disabilities as well as to promote respect for their inherent dignity.*
>
> *Persons with disabilities include those with physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation into the society on an equal basis in comparison to others*".
>
> (International Convention on the Rights of Persons with Disabilities, Article 5).

In Spain, the notion of disability as a right issue is embodied in the Law 51/2003 of December 2, of *Equal Opportunity, Non-Discrimination and Universal Accessibility for Persons with Disabilities* (LIONDAU), which provides the general framework in which the public authorities can act in the field of disability. It incorporates the principles of equal opportunity and no discrimination, the universal accessibility, in line with the international trends and requirements of the European Union and introduces into our ordinance a new renewed approach, allowing space for a new social conception of disability, which exceeds the fundamental rehabilitative approach that inspired the Law 13/1982, of April 22, *Social Integration of Disabled Persons* (LISMI).

The concept of 'universal accessibility'

Accessibility is the set of features that should meet the environments, processes, goods, products and services as well as objects or instruments, tools and devices in order to be understandable, usable and playable by all people in safe and comfortable condition and the most independent and natural way possible. It presupposes the strategy of the design for all and is without any prejudice of the reasonable adjustments to be implemented. The design for all is defined as the activity that is conceived or planned, from its origin and, whenever it be possible, to environments, processes, goods, products, services, objects, instruments, devices or tools so that they can be used by all people, to at a greatest extent possible.

UNIVERSITY AND DISABILITY OBSERVATORY

When referring to the accessibility of the university environment it is included all the physical and technological environments, services and processes that are unfold for the fulfilment of the basic functions of the university: teaching, R & D and university life.

The conceptual definition of accessibility used in this study is the one that involves the realization of the principle of normalization in the sense of gaining access to the same places, areas, goods and services that are available to any other person.

The current concept of accessibility is becoming more comprehensive, and clearly exceeds that of just physical accessibility, as set out in the National Accessibility Plan 2004-2012:

> *"Accessibility is the set of characteristics that an environment, product or service must have in order to be used in a comfortable, safe and equal condition by all people, and in particular, by those that have some disability." (Alonso, 2003, p.22)*

Universal Accessibility is no longer exclusively related to the removal of architectural barriers and extends to all types of spaces, products and services, as stated in the *White Book about university and disability.* This concept is also considered a necessary condition to guarantee the constitutional principle of equal opportunities:

> *"…the new concept of accessibility does not benefit only a certain social group, such as people with disabilities, but all the entire community." (Peralta, 2007, p.49)*

Thus, a fully accessible learning environment is a place which students not only can be in but where they want to be in. A learning environment will be considered accessible even if it offers conditions that make it attractive to a wide range of potential users, thus increasing the chance that any of them chooses to spend a part of their life in it.

University environment

In this study framework, the term university environment is considered as a broad concept that encompasses all those goods, processes and services offered by the university to carry out specific functions, ie teaching and R+D+i, as well as the promotion of social activities.

To provide more details, the university environment is made up of facilities and infrastructures (classrooms, laboratories, libraries, gymnasiums and sports halls, offices, auditoriums, multipurpose spaces, residences, bars, parks, open spaces, etc.) As for the equipment in these facilities (computers, software, devices, machines, measuring equipment, utensils, furniture, models, etc..) and also the activities carried out by the teaching and service staff, students, or services offered to them (learning, research, technology transfer, management and organization, information and advice, formalities, sports and social activities, etc). In a broad conception of this study, there

are also considered part of the university environment the campus access by means of public or private transport and the housing for students.

Likewise, there are also considered as part of the university environment the relationships, behaviours and attitudes that are established among the community. So, when you mention the concept of accessible university environment, the accessibility term is applicable to all the physical, technological and social dimensions.

REGULATORY FRAMEWORK

In order to complement the conceptual framework, it is necessary to introduce key elements from the legislative context, which sets the ethical border and the obligation on the issue of equal opportunities and accessibility in the educational environment. This section of the study presents a summary of the main laws in force in Spain regarding accessibility and education. To complement this section, Annex 1 "Normative References" provides an inventory of legal references with different scope and enforcement, both internationally and in our country, under the various fields of competence (national, regional and municipal).

In terms of accessibility, the regulatory evolution has been remarkable in recent years. Since the Constitution of 1978, which sets out the principles of equality and the State's obligation to remove obstacles that prevent the effective exercise of that right (Articles 9, 14), and through international treaties signed by the Spanish state, there have been added a set of precepts that have incorporated the concepts of "universal access" and "design for all" in the constitutional law.

In the development of these constitutional provisions, the *Law 13/1982 of April 7 Social Integration of Disabled Persons* (hereinafter LISMI) is the first standard that recognizes individual rights for people with disabilities. The competence framework developed in sections 148 and 149 of the Spanish Constitution, which states that the establishment of the basic regulatory conditions and autonomous development standards is responsibility of the State, made that the implementation of this Act be carried out very unevenly. Despite this, both the LISMI and the regional regulations that developed it have allowed a remarkable progress in this sector.

Subsequently, the approval of the *Law 51/2003 of December 2, on Equal Opportunities, Design for All and Universal accessibility* seeks to remove all the obstacles that impede the achievement of an independent living as stated in its preamble, through minimum regulations that mark the accessibility standards required to make effective the philosophical principles contained in this rule. The Royal Decrees, later approved to describe on detail the requirements for accessibility, equal opportunity and affirmative action in the different areas, specify the action lines at varying levels and contain deadlines for assuming and applying the measures by the competent bodies from each subject.

UNIVERSITY AND DISABILITY OBSERVATORY

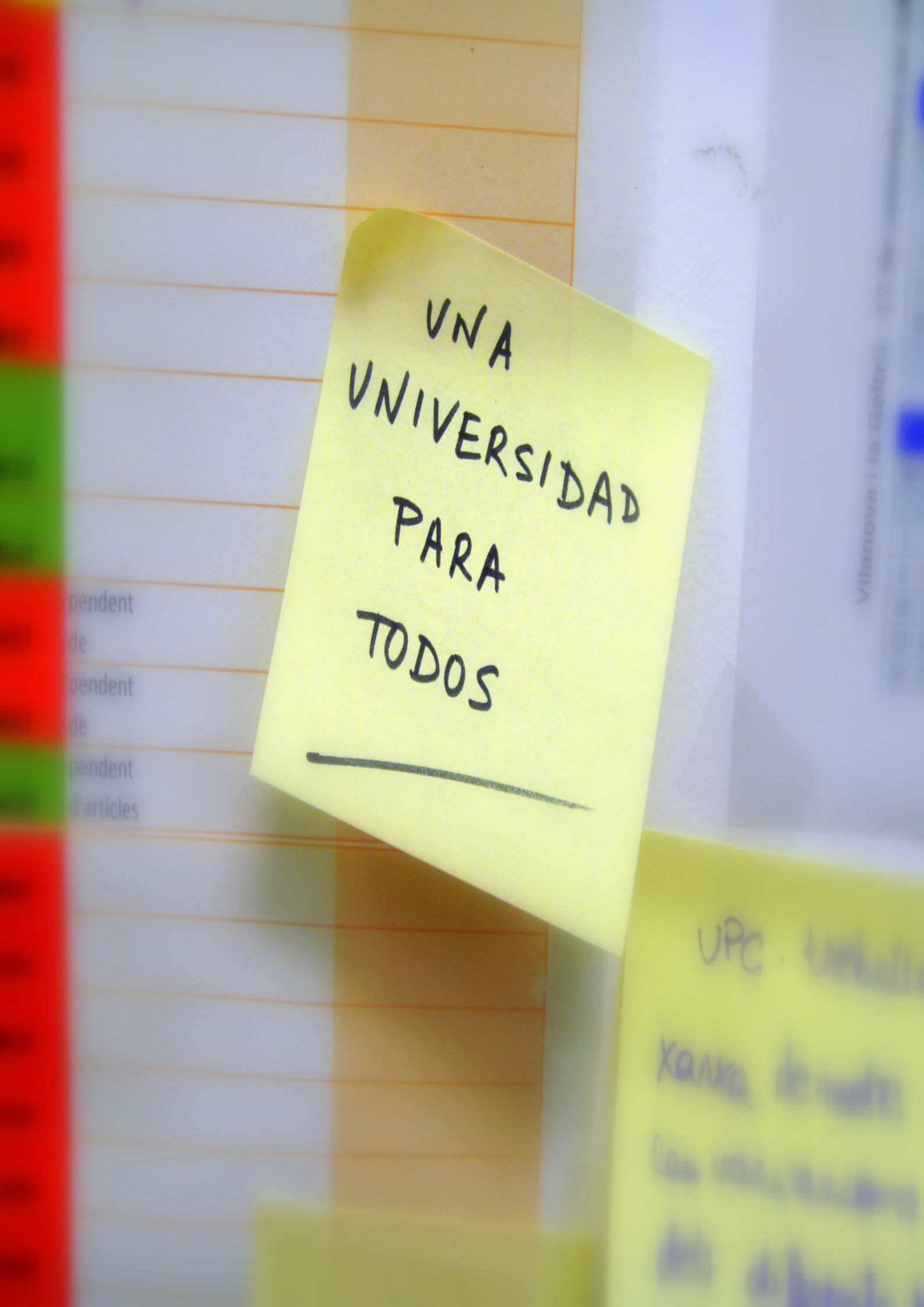
In terms of communication accessibility, it is important to stand out the approval of the Law 27/2007 of 23rd October, which recognizes the Spanish sign languages and regulates the support means to the oral communication of deaf people with hearing and deaf-blind impairment and regulates the right of learning and using the language in different areas such as education, issues that should be included in the university.

At the university level, it is importat to point out the Organic Law 6/2001 of 21st December on Universities (hereinafter LOU), which states in its preamble the need to implement active policies to ensure equal opportunities for people with disabilities. Thus, the 24th additional provision formulates that people with disabilities will be able to receive the necessary adaptations and personal assistance in the educational system besides the means, resources and support so that the equal opportunities be real. Likewise, this regulation also containts 45 explicit references in its article the grants and aids, in addition to the enrolment fee exemption.

The Organic Law 4/2007 of 12th April, amending the LOU, makes an important advance in the new wording of the 24th Additional Provision, which very broadly reflects the rights of the university students with disabilities in a new framework of "inclusive university". Finally, for the development of this regulation there was approved the Royal Decree from November 14th, 2008, which regulates the conditions for accessing to official university degrees and also the admission procedures to the Spanish public universities by rising the percentage of reservation for students with disabilities from 3% to 5%, at the same level with the reservation of posts in the current public employment.

Finally, with regard to the international law, it stands out the Convention on the Rights of Persons with Disabilities, which draws a picture with all ethical and fundamental to the state legal development. This treaty contains articles devoted to accessibility and education, and points out the measures that the States should take in (these items are included in Annex Normative References). Spain, which ratified the Convention from December 3rd, 2007, is obliged to comply it since May 2008, the moment when the Convention entered into force after the completion of the thirtieth day from the deposit of the twentieth instrument of ratification.

UNIVERSITY AND DISABILITY OBSERVATORY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OBJECTIVES ▪▪▪

MAIN OBJECTIVE

The main objective of this study is to conduct an exploratory approach to the state of accessibility of the Spanish university environment under a double perspective: the performance objective of the present regulatory framework in terms of accessibility and the reality experienced by students with disabilities.

Under this dual perspective, the overall objective can be broken into an objective and verifiable dimension of the state of accessibility in the university and a subjective dimension of the perception of one university student with a disability.

SPECIFIC OBJECTIVES

The approach to the more objective aspect of accessibility is to observe the following aspects (specific objectives):

- Checking for the development of policies that regulate the rights of students with disabilities as well as the application of accessibility plans or the introduction of other specific activities aimed at promoting accessibility.
- Checking for the head figure for the design for all or the equivalent responsible for maintenance, services and facilities, with training and adequate qualification, and related specific awareness.
- Knowing about the existence of specific support services or programs for students with disabilities, and the promotion of accessibility (psycho-pedagogical and curriculum accommodation, counselling, employability ...)
- Checking for the existence of dissemination and broadcasting channels about accessibility measures, services and programs available for students with disabilities.
- Checking for the existence of specific channels for complaints or suggestions by students with disabilities in relation to matters relating to this dimension.
- Checking for the existence of specific training for the personnel responsible of taking care of students with disabilities: ASS (administration and services), teachers, maintenance, facilities and infrastructure staff.
- Knowing the status of the accessibility certification for the access to information and communications.
- Checking for the existence of accessibility evaluation plans in centres.

From the standpoint of student's perceptions, the specific objective is:

- To explore the perceptions that students with disabilities have about the university and its accessibility, considering the physical dimension of the architecture, the technical resources and the services offered; the social interaction with the various actors involved in this practice (family, parents, teachers); and also the educational stages prior to the expectations of labour inclusion, all in all, in order to identify factors that facilitate accessibility of this environment and the success of the experience.

UNIVERSITY AND DISABILITY OBSERVATORY

METHODOLOGY ...

First, it is necessary to remember that the main objective is to carry out an evaluation of the state of accessibility in the university context through an explorative and descriptive approach of reality. This is carried out under a double perspective: on one side, registering all the objective data when possible, starting from the people in charge of the university centres and the observation of the field; and, on the other side, contrasting with the subjective perceptions of students with disability related to the university and its accessibility conditions. In order to carry out both approaches, there was planned the following methodological approach:

In order to carry out the objective evaluation that permits the exploration of the state of accessibility in the university context, there were used two different research methods: *survey and observation (or data collection) of the field.*

The *survey* consists of a series of direct questions to a representative sample of subjects. The questions were previously written and standardized with the aim of describing or matching personal characteristics and some information areas needed to answer the issue of the research. The scope of the survey does not pretend to stand for a representation but just an indicative sample since there was carried out 18 surveys in a universe of 52 units.

In the case of the *observation,* according to Dane (1997), this methodology evaluates, on one side, the event as it happens, and on the other, it implies a continuum of naturalness. This method implies that the researcher has thematic observation guides related to aspects of the object of study.

In order to explore the perception of the university student with disability regarding accessibility and his/her academic and social integration in the university context, it has been used a qualitative method: *a personal in-depth interview.*

The in-depth interviews are semi-structured. They are based on a guide consisting of previously defined thematic sections and research lines, which are also of open response. The interviewer has the possibility of reordering the questions of the guide during the interview in all moment in order to address new areas of information that may be of interest. In other words, this interview is conceived as a 'conversation between two people', an interviewer and an informant, directed and registered by the interviewer with the aim of encouraging speech production, with a continuous story line- no fragmented but segmented, pre-codified and closed by a previous questionnaire— from the interviewer, dealing an issue defined in the research framework (Alonso, L. E., 1998, p. 74).

ACCESSIBILITY IN THE UNVIERSITY CONTEXT: APPROACHING BY CONSULTING THE CENTRES (SURVEY) AND OBSERVATION

The techniques used were the survey and the observation of the field or gathering of fieldwork data, with the aim of registering and analysing the quantitative information with exploratory aims. There are exposed the main aspects followed in this method.

First phase: survey

Methodology

It has been used a semi-structured questionnaire (attached in Annex 2) of 20 minutes duration, approximately. This questionnaire was sent by e-mail to 20 public universities from Spain and responded within established deadline by 18 universities. For reasons of confidentiality and anonymity, the data presented has a codification for representing each university.

The questionnaires were filled by technicians from the specific services and departments for the assistance of students with disability, each of them different in name, organization, and hierarchical dependency depending on the university.

Sample design

Due to the criteria applied and the limited number of units included in the sample, the scope of the approach to the state of accessibility in universities has an exploratory character. The sample, in this case, does not pretend to be a statistic representation but a significant approach that indicates the accessibility situation of a set of elements in the university context.

The population object of study comes from all the Spanish public universities, including the UNED (Distance Education University). In this case, despite the different elements related to the no physical presence of students, it can not be set apart since it has the greatest number of students with disability enrolled and it is the most preferred by a great percentage of them.

From this set of public universities, there have been selected 20 universities that have been invited to participate and 18 were the ones that finally participated.

UNIVERSITY AND DISABILITY OBSERVATORY

The variables applied for making the sample were the following:

- Size of the university centres regarding their extension and number of campuses. Three categories were considered:
  - Big
  - Medium
  - Small
- Geographical distribution per Autonomous Communities.
- Type of university regarding the number of students enrolled[6]:
  - Big: over the average.
  - Small: below the average.
- Position in the International ranking: Times Higher Education QS World University Ranking[7]. Three levels were considered in the ranking:
  - Positions 1 a 299
  - Positions 300 a 500
  - Positions superior to 500

After that, it is detailed a distribution of the 18 universities selected regarding the variables previously mentioned.

[6] The average of student population in public universities is set in 26,417 students, according to the INE data for the 2006-2007 academic year (INE, 2008b).

[7] The company QS Quacquarelli Symond together with the Times Higher Education journal make an annual ranking on the best universities and higher education institutions of the world.

Table 1. Distribution of the sample regarding the size of centres - UDO source

SIZE OF CENTRES	
Big	6
Medium	4
Small	8
TOTAL	**18 universities**

Table 2. Distribution of the sample regarding the Autonomous Community UDO source

GEOGRAPHICAL DISTRIBUTION PER AACC	
Castilla y León	2
Comunidad de Madrid	2
Andalucía	2
Estatal	1
Asturias	1
La Rioja	1
Murcia	1
Castilla La Mancha	1
Cantabria	1
Islas Baleares	1
Navarra	1

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GEOGRAPHICAL DISTRIBUTION PER AACC	
Comunidad Valenciana	1
Extremadura	1
País Vasco	1
Galicia	1
TOTAL	18 universities

Table 3. Distribution of the sample regarding the number of students

UDO source

NUMBER OF STUDENTS	
Big - over the average	9
Small- below the average	9
TOTAL	18 universities

Table 4. Distribution of the sample regarding the ranking position of Times Higher Education QS World University. UDO source

Times Higher Education QS World University RANKING POSITION	
Position 0-300	5
Position 300-500	8
Position higher than 500	5
TOTAL	18 universities

Second Phase: Observation and fieldwork data collection

Methodology

As a complement to the questionnaires sent, there was carried out an observation of the field in 5 universities with the aim of evaluating the level of accessibility in different areas (urban, edification, transport, communication and physical accessibility to information).

In this process, the researcher had an observation guide (attached to Annex 3) that allowed a verification of the university environment accessibility. That guide consist of structured questionnaire made up of objective closed-ended questions (with a qualitative scale), which are complemented with open observations (descriptive and of qualitative nature). The sum of the questions are a total of 30 points used to verify the state of accessibility which the interviewer/observer had to evaluate.

Design of the sample

The ground observation was carried out on a sample of 5 universities selected under the following criteria:

- Universities where the Vía Libre Company has executed accessibility projects, because those universities provide direct knowledge of the different accessibility circumstances of the environment.

UNIVERSITY AND DISABILITY OBSERVATORY

- Universities that, from the data obtained in the questionnaires from the first phase are considered more illustrative because of their achievements or difficulties.

PERCEPTION BY THE UNIVERSITY STUDENTS WITH DISABILITY

Methodology

There were carried out a sum of 19 in-depth interviews to students with disability in order to know their perception of accessibility in the university environment.

For that, there was used a thematic comprehensive guide containing different areas that are object of analysis in this study (annex 4). This way, the interviews were guided and focused on the key points for this study, favouring open and flexible speeches, but motivated by the questions of interest proposed by the researcher (Bascones, 2008, p.103).

Design of the sample

The design and distribution of the sample is based on a typological criterion. The selection of the participants for the interview was defined from the identification of variables that significantly take part in configuring differentiated experiences in the accessibility of the university environment.

The distribution of these 19 in-depth interviews (see table 4), intends to keep equilibrium between the variables stated below, as well as the availability of the universities and their students with disability, in order to make the final selection of participants:

- Types of disability[8]:
  - Motor disability (13 interviewed): when commuting, with chair or crutch; when manipulating; or affecting both functions.
  - Visual disability (2 interviewed): total or low vision (central or peripheral.
  - Hearing disability (3 interviewed): total or hypoacusis.
- Age: students between 18 and 32 years old, so to find a sort of homogeneity regarding the life trajectory of the interviewed[9]:
  - 18-23 years (8 interviews)
  - 24-27 years (8 interviews)
  - 28-32 years (3 interviews)
- Social class[10]: this variable has been calculated in reference to the current or last employment of the main earner (head of the family):
  - High (5 interviews)
  - Middle (9 interviews)
  - Low/worker (5 interviews).

[8] In the sample there were not included students with mental disability or mental disease due to their low visibility in the population of the university centres, related to the fact that they do not tend to identify themselves as people with disability, despite their presence in the Spanish Public Universities.

[9] Although this first study of the University and Disability Observatory limited the age of the students in the sample between 18 and 32 years, it is worth noting the tendency based on 'life long learning'. Then, it is necessary to have into account the participation of older people with disability in higher studies as a growing phenomena. For that reason it is planned to consider this approach as part of the sample to be interviewed in future editions.

[10] According to the classification of social classes by Hope-Goldthorpe (Hope-Goldthorpe, 1978).

UNIVERSITY AND DISABILITY OBSERVATORY

- Type of university regarding the availability of disability support services in the universities[11]:
  - High availability (11 interviews)
  - Low availability (8 interviews)
- Type of universities regarding the number of students enrolled[12]:
  - Centrals: higher than the average (10 interviews)
  - Peripherals: below the average (9 interviews)

[11] In order to build this variable, there were considered the technical, human and physical accessibility resources taking as a base the Guide of Resources University and Disability in the *White book on the university and disability* (Peralta, A., 2007), updating the information through university web pages and direct contact with secretariats.

[12] There were considered the average of student population in the public university, which stands at 26,417 students, according to the INE students from the course year 2006-2007 (INE, 2008b).

Table 5. Summary chart of the interviews in relation to the university, study and course year, age, genre, social class, type of disability and alias. UDO Source.

	Alias Code	Type of disability	Courses and studies	Age and sex	Social class
Big universities (students), great availability of resources and services.	Motor-Dyox-23-M-Middle	Motor-Disp	5º Computers	23 Man	Middle
	Motor-VAN-26-W-Middle	Motor-Disp+Mani	2º Psychology	26 Woman	Middle
	Hear-Albert--19-M-High	Hearing	1º Industrial engineering	19 Man	High
	Motor-CV-27-M-High	Motor-Disp	3º Tech. Architecture	27 Man	High
	Hear-Crash-20-M-High	Hearing	1º-2º Architecture	20 Man	High
	Visu-Lorenzo-28-W-Worker	Visual	1º Business	28 Woman	Low
	Motor-Claudia-27-W-High	Motor-Disp	1º Psychology	27 Woman	High
Big universities (students), low availability of resources and services	Motor-Ana-24-W-Middle	Motor-Disp+Mani	4º Physics	24 Woman	Middle
	Motor-Laura-23-W-Middle	Motor-Disp	3º Economy	23 Woman	Middle
	Motor-Sara-28-W-High	Motor-Disp	5º Architecture	28 Woman	High
Small universities (students), great availability of resources and services	Other-MMR-20-W-Middle	Achondroplasia	4º Psychology	20 Woman	Middle
	Hear-Pegaso- 27-W-Worker	Hearing	3º Nursery	27 Woman	Low
	Motor-MGJ-24-W-Middle	Motor-Disp	5º Biology	24 Woman	Middle
	Visu/Hear-David-23-M-Worker	Visual and Hearing	3º Computer engineering	23 Man	Low
Small universities (students), low availability of resources and services	Motor-Nube-32-W-Worker	Motor-Disp+Mani	1º Primary teacher	32 Woman	Low
	Motor-Patricia-27-W-Middle	Motor-Disp	3º Social work	27 Woman	Middle
	Motor-Duna-23-W-Middle	Motor-Disp+Mani	4º Social education	23 Woman	Middle
	Motor-Laura-27-W-Middle	Motor-Disp	Design	27 Woman	Middle
	Motor-Roser-20-W-Worker	Motor-Disp	3º Business Administration	20 Woman	Low

disp: displacement

mani: manipulation

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SCOPE OF THE STUDY RESULTS

It should be noted that, because of the importance of the data interpretation, the scope of the study does not look for a statistical representation of results and conclusions but a more qualitative and descriptive approach that denotes a tendency in the level of accessibility in the university context.

The sample design in each of the three methods applied –survey, field observation and personal interviews- have a qualitative character. Because of the distribution and number of units, this first study of the Observatory pretends to include different scenarios related to the accessibility of university centres.

The design and distribution of the in-depth interview sample implies that the generalization procedures are analytical and not statistical: it is sought to know and represent different practices, representations and attitudes set in a context and from the experience of the subjects.

The method combines two complementary aspects: first, it is based on the external evaluation of a set of dimensions related to accessibility (survey, field observation), keeping coherence in the information areas; second, focused in registering the perception by students with disability living that same reality.

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ACCESIBILIDAD FÍSICA
SI/NO
Observaciones o puntualizaciones:
Univ. grande (alumnado), poca disponibilidad de recursos y servicios
Univ. pequeñas (alumnado), gran disponibilidad de recursos y servicios

MAIN RESULTS ...

INTRODUCTION

The presentation of results has been structured in two sections. First, it presents an expert approach to accessibility, external or not to the university context. Its character is quantitative because of the method used for registering data, both from the forms filled up by each university's Disability Student Service and the guided fieldwork carried out in the selected five universities. Second, there are included the results related to the perceptions of students with disability.

ACCESSIBILITY IN THE UNIVERSITY ENVIRONMENT: APPROACH BASED ON THE SURVEY AND FIELD OBSERVATION

This section presents the results of the information gathered in the first phase of the research, containing interviews to technicians from the selected 18 Spanish universities and the field observation of the selected 5 universities.

Survey to technicians from the Disability Student Service

The interviews conducted with technicians of the Disability Student Service from the 18 universities, contain topics related to accessibility plans, audits, assistant service offices addressed to students or aimed at the design for all, physical accessibility issues, teaching or other services offered by universities.

The action areas to achieve the aim of accessibility can be resumed in four basic aspects, which are also included in sections and items of the survey sent to universities and whose results are analysed in this section of the research:

- *Barrier removal* (physical, communication and attitude). They impede or make difficult that people with disability access to centres or learning programs.
- *Regulation of positive discrimination measures for the access* to studies, reserving seats, applying exemptions and other specific complements.
- Adequacy of the educational organization in all its aspects (regulations, learning programs, methodology, didactic resources, etc, in a way that, while

keeping the learning objectives and quality of the level and the educational centre, the special needs of students with disability be included.

- Establish support and complementary services needed to adequately give answer to the needs of people with disability.

Among the different variables studied through the questionnaire, there is a small core that refers to significant aspects such as the basic and determining support to accessibility means in the resting dimensions. They consist of:

- The existence, or not, of an Accessibility Plan and its implementation state.
- If the correspondent **Disability Student Service** or similar does work.
- If the figure of **Responsible for the Design for All** is considered and fully operational.

The results confirmed that these aspects correlate positively or negatively in the following results obtained in the other variables, acting, then, as predictive indicators. This will be the starting point for presenting the results.

Profile of the support and orientation staff for students with disability and the management of accessibility

From a sociological point of view, it could be seen as relevant the preponderance of female gender in the field of action related to accessibility at university. Perhaps, because of the remnants of the classical conception that links this genre to caring labours or profiles

This increase of female presence is ratified by computing the total number of staff related to the support and orientation of students with disability, and the management of accessibility, both in government bodies, as well as directors and technicians. It is then reproduced the inverted pyramid where there is a greater presence of women in lower echelons of the hierarchy which go on diminishing as the echelons are superior.

Considering the different situations given in the study, the directly related human resources are made up of a minimum of three people (including the highest level post that usually belongs to the Vice-chancellor of students or similar; then the head of the service or unit; and finally the technician) director and eight technicians or administration and services staff).

Despite the differences in the organization chart, it is frequent to find the following organic dependence: offices, units and services, according to the several

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denominations, depend on the Vice-chancellor of Students or Students and Employment, a denomination that also varies in the last phrase.[13]

The training profile these people have is also very diverse: psychologists, psycho-pedagogues, social workers, economists, lawyers, engineers and architects, administration and service staff with high school studies…

Accessibility Plans

11 out of the 18 interviewed universities confirm not to have an Accessibility Plan. The elaboration of such plans started in the year 2000 with the following frequency: (one of the universities did not state the date it was written up)

- In 2000: one plan
- In 2001: one plan
- In 2004: one plan
- In 2005: two plans
- In 2006: two plans
- In 2007: two plans
- In 2008: one plan

According to these results, considering the current regulation and that an Accessibility Plan is a basic tool to implement and enhance accessibility based on

[13] Between the different denominations of these bodies and their responsible there are: Director of the Social issues Service, Director of the University Service Area, Deputy of the Chancellor for Social Responsibility, Head of the Program for the Integration of Students with Disabilities, Responsible for the Integration of Students with Disabilities (Personal Counselling and Orientation Service), Responsible of the Support Service for Students with Disabilities, Orientation Service in the University, Base Manager of the Planning and Evaluation Service, University Social workers, Technician of the Office for the Assistance to Students with Disability, OAED Manager, Coordinator of the Delegation for the Integration of Persons with Disabilities, Technician in charge of the Program for the Equalization of opportunities, Technician responsible for the Psycho-educational Advisory Program, Director of the Accessibility and Social Support Area, Technician from the Support Unit to Students with Disability, Technician Responsible of Disabilities, Technician Responsible of the Area for the Assistance to Disability in the Office for Cooperation and solidarity, Coordinator of the Participation Service and University the Integration/ Responsible of the Integration Area.

systematic criteria, it can be considered that the universities that count on this support is a relatively low number.

The fact that just about half of the university centres surveyed have Accessibility Plans, that other universities have only partial plans in specific buildings and the incomplete foresight by those universities that do not have it yet developed, points out the irregularity and diversity of situations, application of strategies and measures regarding accessibility.

Accessibility evaluation audits are a prerequisite to the Accessibility Plan, and they allow measuring the advancement of the environments in this matter. 3 out of the 7 universities that do not have yet the Plans, have not yet implemented an audit, which indicates the low willingness to ensure an accessible environment, at least at a short term.

Among other actions on the field, it is worth noting that one university has stated that it carries out specific actions planned for specific needs through technical reports made by their accessibility service for the Prevention of Occupational Risks.

Only 1 of the 18 universities surveyed has accredited a quality certification and proves to have the DALCO[14] requirements on Technical Standards UNE 170001-1 of Universal Accessibility. With this technical reference, there can be applied the universal accessibility standards with guarantee.

Office for the assistance to the student with disability

13 of the 18 universities surveyed have an Office for the assistance to people with disabilities. With regard to this information, and although it can not be statistically extrapolated to the total number of Spanish public universities, this includes the findings of Prof. José Antonio Mirón en el *Seminario Universidad y Discapacidad CRUE_CERMI in June 2005:*

> *"…in recent years, there have been created many structures and services for the assistance of students with disability. There are exactly 35 services or programs in the 51 Public Universities (69% of the Public universities have one service) and just 3 services or programs in the 15 Private Universities (21%)" (Mirón, 2005).*

The Office is a cornerstone to promote accessibility, helping to implement effective and tangible commitment to policies of integration and personal and professional

[14] These criteria are gathered in the 170001 UNE regulations in order to facilitate the accessibility of the environment in terms of walking, apprehension, location and communication (whose Spanish terms make the acronym DALCO)

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development, and promotes and provides support systems for students with special needs.

Responsible figure for the design for all

The head of design for all in the academic world seems not to be a figure generally implanted or known in the public universities that have been surveyed. Just 6 of these universities recognized to have created this figure currently (from the 18 universities that responded to the survey there are 2 that do not even know if there is such a figure).

The impression obtained, from more than half of the cases, is the operation of parallel structures that, at specific moment, agree addressing certain issues related to accessibility, but without a permanent, real and effective coordination.

Normally, when there is not such a figure, the ultimate responsibility for the environmental accessibility is the technical architect of the university, who coordinates the work in the area of physical accessibility, through the installation of ramps, elevators, and so on. Also, as it could not be otherwise, in all last years' actions it is stated to adhere to the last building code, observing everything related to accessibility.

Regarding the "Design for All", understood as a training element and for qualifying graduates, it can be said that, within the framework of competencies related to the new Curriculum for Grades, these are under a development process by the "Grade Commissions" from the Centres. They are the ones in charge of designing the curriculum and incorporating aspects on the matter established by the Universities Organic Law.

Physical accessibility

Regarding accessibility in the transport, 12 out of the 18 universities that have participated state they have an accessible transport to get to the campus or for moving between campuses. This is an area covered more satisfactorily than the previous ones, although there are several universities that recognize little progress in this regard. The accessibility in transport means adapted vehicles from public transportation, individual grants for adapted transportation, agreements and resources from relevant associations, reserved parking spaces and environments with accessible approach to buildings.

In some cases, it is required that reduced mobility students have a transport grant to cover transport costs from home to the university and so guarantee the access. This grant will disappear when bus companies comply with the accessibility features in all their buses

Accessibility to buildings is the prime example of the most rooted and classical version of accessibility: physical accessibility mostly associated to people with reduced mobility. It is the aspect of accessibility that has took longer time being considered, the most visible one and, therefore, the one that has a greater implementation (16 out of the 18 universities surveyed confirm accessibility of this area). It includes automatic doors, ramps, lifts, side rails for ladders, etc, and the general difficulty for adapting historic buildings that are protected.

It is worth noting that when there is a variety of campus and the consequent multiplicity of buildings, the assessment of the accessibility of those buildings was considered regarding the state of the majority of them, not focused on the individual circumstances of each case. Therefore, a specific problem in this regard is that there are still buildings that are still being accommodated, particularly due to the fact that some of the specific campus buildings are protected because of being considered as Heritage.

In terms of accessibility inside their buildings, the different installations and facilities: classrooms, auditorium, library, laboratories, complementary services (secretarial, accommodated toilets, café...), the result is similar since all participating universities, except one, state to have covered such aspect of the accessibility in their buildings.

As in the previous case, it is worth specifying that the answer makes a general assessment and, of course, it does not refer to each and every case. In fact, some universities where there is accessibility inside their buildings in a pre-eminent way, there are detected specific problems in the access to some classroom or specific rooms such as the auditorium.

Info-accessibility: accessibility in the context of society information

The access to contents and services through information and communication technologies in the context of the information society is playing an increasingly important role in the various activities and, centrally, in the formative process. With the use of Internet as a tool for the development and transmission of educational content, according to Egea (2007), "the old education by mail," based on the called "distance" education, has been replaced by distance and virtual learning.

The need for prior knowledge and skills in the management of technological equipment have made that the new learning possibilities based on ICT be almost exclusive to university or post-university education and, in some cases, education for adults. The interviews to university students, conducted in the present study, demonstrate the key role of technologies (computer, Internet, support products) to cope with the studies with autonomy.

Among the distance learning modalities that are in higher proliferation these days, the one that stands out is the e-learning: online learning or virtual learning, which

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makes use of the advantages of teaching and learning through the Internet. According to the cited author, virtual learning, by making use of the resources offered by the ICT and the Internet, provides students with educational tools for learning in a more dynamic, intuitive and easy way to follow. The use of the Internet makes possible, in addition, the personalization and individualization of the learning process by adapting the rhythm to each student and the access to learning tools without time or geographic limits. Among the potential group of students that are users of such virtual learning, according to Egea (2007), the ones who stand out are the group of people with disabilities since this method greatly attenuate the obstacles related to their transfer to the learning centre (classrooms, libraries, etc..), and the physical barriers of the environment, being conditioned by campus elements, either building or means of transport.

Such educational tools include various alternative formats for presenting the content (text, animations, graphics, videos, etc.), collections of electronic resources, digital library, and communication tools between students or between the student and the tutor (e-mail, chats, forums, etc.). They are based on e-learning platforms whose accessibility is essential for the participation without obstacles of students with disability.

Along with the growing implementation of e-learning, the concept of in-person tutoring is also being included with the support of technology, known as b-learning ("blended learning", combined teaching), a teaching-learning method that combines classroom training with e-learning (Egea, 2007).

The vision of the educational environment as a technological environment is not just reduced to the activity of teaching and learning, though most characteristic of it. Participation in the training process involves other necessary actions that are also based on the increasing use of technologies. For example, administrative procedures students have to carry out at the university when choosing subjects, courses or studies of their choice, which were traditionally carried out in person, nowadays, they can be done through the Internet and on the same university page of the learning centre. This possibility is a significant advance in terms of saving time and travel to students and allows that such procedures can be made regardless of the opening hours of the centres.

Today the website of a learning centre is an ever richer space of information and forms of interactivity, besides being the best presentation for students seeking to continue their studies at the University, an ever-expanding community in terms of location and geographical origin.

In this line, this study seeks only an approach regarding the accredited compliance of accessibility through the same survey carreid out to universities. 11 of the 18 participating universities state that they have not the web accessibility certified through an instrument such as the Web Accessibility Test (TAW). In addition, there is the frequent contradiction that specific pages of information or access to contents of disability are accessible but not the main pages. Besides, in many cases, the

university web service is not centralized, since it does not have a single web page, but multiple, so not all the pages from university services have certified the accessibility.

Accessibility is a prerequisite for public administration websites, which must meet since December 31st, 2008, at least the average level for the accessibility criteria to the content generally recognized. This was established by the *Law 57/2007 of 28 December on Measures to Promote the Information Society* (see Annex 1).

So far, just 7 of the 18 universities surveyed provide the availability of a service for registration or pre-enrolment.

In cases where there are web services available, the *services provided* in the *Library* are the ones that mainly have technological resources for queries.

On the other hand, it is relevant the remark made by two universities regarding the fact that the classical means used to contact the students with disability, the telephone, usually tend to be ignored since they are obsolete, being then replaced by new alternatives: "E-mail, instant messaging, video conference, phone call through the service of sign language interpreters, fax, and in very rare cases, the mediation service."

Regarding the availability of accessible phones in the studied centres, the initiative of enabling telephone booths at a suitable height for people in wheelchairs has been the most adopted one by half of the universities interviewed. The incorporation of environmental sound isolation, listening volume amplifier and complementary light signals has been performed in acoustic one-third of the universities studied. Is introduced as a less telephone device for the deaf, where only 2 of 18 universities have it incorporated.

In the field of Info-accessibility, the studies conducted by the *Info-accessibility Observatory of the Discapnet portal*[15] are a reference for better understanding the basis for accessible web design, in line with the W3C/WAI[16]recommendations. These studies focus on the analysis of the accessibility from universities in Spain.

[15] Discapnet. *Informes de infoaccesibilidad* [online]. Madrid: Discapnet, 2004-2010. Consulted: 26 Octuber 2010. Avaliable on: <http://www.discapnet.es/Castellano/areastematicas/Accesibilidad/Observatorio_infoaccesibilidad/informesInfoaccesibilidad/Paginas/default.aspx>.

[16] *W3C/Web Accessibility Initiative* (WAI). [online]. Cambridge, MA: WAI, 2010. Consulted: 26 Octuber 2010. Avaliable on: <http://www.w3.org/WAI>.

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Accessibility in teaching and contents

The level of "accessibility in teaching"[17] that the universities have varies enormously according to the resources or services analyzed. Economic helps or educational support (15 universities), accommodated curricular material in format (14 universities) and the digitization service for data and previous class notes (12 universities) are the resources widely implemented in the universities studied. However, accommodated curricular material in contents and accommodations in libraries (audio books or Braille) are resources available just in half of the universities analysed. The provision of class notes is hardly resolved by measures such as the delivery of previous class notes. Other alternatives and solutions to the issue of class notes come from the hand of carbonless notebooks and the figure of volunteers. The ONCE's collaboration is fundamental since they provide to students with visual impairment adapted material to provide students with visual impairments.

The important gap is set in the psycho-pedagogical area and the non-significant curricular accommodations. Nor experience, means or any material or human resources are detected in order to fulfil a systematic design for such accommodations.

In the best-case scenario, teachers are provided with generic guidelines they must interpret and apply according to their willingness and ability the when implementing the program.

Regarding the section on *classroom resources*, FM stations and laptops are the technical resources most provided by universities (14 and 15 of the 18 universities, respectively), either by loans or agreements with other entities. Tele-magnifiers, sign language interpreters, magnetic loops (in increasing implantation), virtual whiteboards, audio-text transcription or speech synthesizers translators are other resources or technical support present in one of every three universities studied. Especially in new buildings, there can be occasionally found examples of foldable and adapted furniture.

By contrast, there have not been found cases in which the centres provide computerized stenotype, the tablet PC and a video camera connected to a PC.

We have detected that libraries are one of the services with more favourable attitudes and measures towards accessibility. Among the adopted measures, apart from the possibility of requesting or renewing books through the web or by phone,

[17] What is intended to mean by "accessibility in the teaching" is the analysis of the characteristics that define the elements for teaching practice and exercise that the student receives / perceives, not whether people with disability can access to that teaching practice and exercise.

there are included flexible deadlines and accommodated materials provided by the ONCE.

As for the origin of accommodated material, it is verified that the universities interviewed provide mostly: sign language interpreters, assistants support for occasional situations, FM radio and induction loops, carbonless notebooks, specific furniture, laptops and interactive whiteboards. According to the participating institutions, the students bring with them: personal accommodated laptops that incorporate audio and, reading and writing systems.

There are three distinguishing criteria followed when choosing one or another accessibility option in teaching, according to the universities interviewed:

- *The joint assessment with the student about his/her individual needs* / the need of each person (it is even sent a psycho educational report to the teaching staff to inform them about the need and use of the resource).
- The *individual assessment of each case*, as there are already specific cases that can be hired equipment, provide interprets and specific accommodations. Usually, from the Area for the assistance to Disability, students are assessed according to objective criteria based on their degree of personal autonomy, their needs and the difficulties to carry out different tasks autonomously and then, resources are assigned based on their needs. When these criteria are considered, in relation to personal assistants, it is followed the criteria recommended by the evaluation committee of the Law *on the Personal Autonomy and Care for Dependent People*. In the case of students with visual impairments the resources are provided by the ONCE).
- The adequacy in terms of equal opportunities.

Regarding the responsibility of keeping the available resources at an appropriate state and availability for their use, there are the computer services and the technical or social action units as the ones who mostly take care of them in the range of cited bodies.

Services and Programs

As for the existence of specific services or programs to support students with disabilities and the promotion of accessibility at the universities, there should be highlighted as widespread issue among the universities surveyed the school, personal and professional counselling services, and the labour insertion and employability services. However, it is true that in some cases, the service is not specific for students with disabilities but is a general service that also assists them.

In addition to these general services, there are other projects also mentioned by the universities that have also participated in the study:

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- Project CLASS NOTES: support of volunteers with the function of taking notes for university students with disabilities.
- Project aimed at the intervention of sign language interpreters in university classrooms for students with hearing impairment.
- Grants (annual call).
- Technical aids and specific computer service.
- Human support (volunteers, grants, credits).
- Priority when enrolling.
- Accommodation of the study desk.
- Collaborating scholar.
- FM broadcasters
- Transport grants.
- Accommodated transport.
- Accommodations in the entry exams.
- Orientation and support for specific scholarships.
- Family orientation and psychological support.
- Specific accommodations in speech events, activities related to disability and integration.
- Specific accommodations in classrooms.
- Other personalized supports (coffee bar, cultural and sport activities, etc.)
- Accessibility in complementary activities.

Regarding the possibility for accessing to complementary activities or related to university extension (leisure and sport, cultural), 10 of the 18 centres reported having such accommodations. It is worth noting that, from 8 remaining universities half of them show ignorance towards the issue, which do not allow confirmation of the availability of such services.

Accommodated courses,costumes and specialized monitors are, following this order, the major accessibility measures in this field.

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Information, dissemination, demands

About the existence of proper channels for the appropriate divulging and dissemination of accessibility measures, services and programs at the university, it should be noted that, by having 14 universities that respond positively out of 18, these are one of the most satisfying aspects by the universities. Among the used channels most mentioned there are included:

- Website from the Student Assistance Service.
- Information brochures and leaflets.
- Informative posters.
- Direct information to students with disabilities (in high schools and the entrance examination).

Within this field, in relation to the university's possession of the internal normative regulation in the form of a *Service Charter, or similar*, regarding the commitment of accessibility issues, less than half of the universities considered (8 of 18 universities) declares having such normative regulations. However, from such charter or commitment statement does not come a uniquely achievement. The results from the present study brings both cases, university centres with an explicit guarantee and a consecution of accessibility objectives considered medium-low; and universities interviewed with a degree of accessibility that is not made explicit in guaranteeing aspects. The result is not uniquely derived from its achievement. The results of this exploration both cases provide universities with explicit guarantee in this regard and achieve a degree of accessibility targets that could be considered medium-low and, conversely, other universities interviewed high level of accessibility not reflected in these guaranteeing aspects.

On the other hand, it must be noted that in 12 of the 18 universities, the students with disabilities have channels to pursue complaints, suggestions or evaluations of their satisfaction either through general channels available to all students or through specific means. The most common channels available in these universities are:

- The University Ombudsman.
- The Vice chancellor of Students (or similar) that addresses these issues and attempts to resolve, as much as possible, the suggestions and complaints from students with disabilities.
- Applications through the Support Unit for Students with Disabilities.
- The writings issued to the Chancellor.

Training in accessibility

Regarding internal training, the one aimed at the staff responsible for assisting students with disability (teaching staff, administration and service staff, maintenance, facilities and infrastructure staff), it is concluded that 15 of the 18 universities of the sample provide an appropriate training for their staff. However, while there is not a specific and systematic training on that issue, the following aspects seen in most universities stand out:

- Edit the *protocols of action* with respect to people with disabilities, according to the different typology that may arise, especially in training processes.
- The people responsible in giving personal attention to students with disabilities are trained and in permanent contact with associations of disabled people so to monitor them. They participate in national conferences and technical seminars on the subject.
- The Staff responsible for the Technical Unit (construction and maintenance) is qualified in legislation and technical solutions on accessibility.
- The service that gives support to the Assistance Unit may have staff trained in sign language.
- Use of outsourcing or specific collaboration for simultaneous translation in sign language in some activities.
- Training courses for the administrative and service staff and the teaching staff.
- Technical support for professors with students with disability.
- Coordinator in each building.
- Awareness campaigns.

On the opposite side, just 5 of the 18 universities analyzed provide the *inclusion of the Design for All contents in the curricula* in some Faculty or in interfaculty or interdepartmental subjects. This is one of the more legal breaches: the LIONDAU stipulated that within the two years after the adoption of the law, these contents should be included.

Accessibility policies

Among the policies on accessibility, state or regional ones, which are being implemented in the participating universities with the aim of promoting accessibility, there were cited mainly the following ones:

- The Law on equal opportunities, non discrimination and universal accessibility.
- Specific enrollment access quotas for students with disabilities.
- General framework of the Spanish University Organic Law.
- Programs done in the framework of the Agreement IMSERSO-ONCE Foundation.
- University statutes.
- Enrollment priority and permanence years.
- Existence of specific guidance and advice.
- Management of non-significant curricular accommodations.

Among them, free enrolment policy is applied by all the universities included in the study and graded as favorable. The biggest complaint is that sometimes the university has to pay for it. One aspect in this area is that many students with disabilities, despite knowing about this policy, do not deliver the disability certificate attesting their condition in order to benefit from free enrolment. On the other hand, some opinions gathered point out that it would be more efficient if there were considered other aspects besides disability, such as the academic achievement or even the income level.

With regard to the issue of whether the university receives specific funding from the state, the autonomous community or other institutions or bodies so to include accessibility, it stands out Agreement IMSERSO-ONCE Foundation as a source of aid and subsidy.

In the chapter focused on aspects related to financing and the foresight of whether the economic crisis bring budget cuts on provisions, quality services and accessibility programs, just 3 universities see it as affirmative that this situation will affect; 8 of them consider this will not affect; and 7 of them do not certainly know the answer to that question. It is concluded by the interviewed speakers in the university centres that the cut of budgets on accessibility, apart from being unpopular, it would go against the current. On the other hand, it is considered to be one of sectors that has to be promoted its public activity, employment creator.

The question related to whether the university has established any contract-program-agreement about any public or private institution, the answer that is mostly repeated is the previously mentioned Agreement IMSERSO- ONCE Foundation.

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Recapitulation

In the previous sections, there have been presented the results obtained from the interviews carried out to technicians from attendance services to students with disabilities from the 18 selected universities that make the sample.

Among the data obtained, stand out mainly the low number of universities interviewed that have and Accessibility Plan written up, which is slightly surpasses half the number of the centers studied. At this point, there is a joint absence of audits on accessibility in the universities that do not have a plan. In these terms, it is pointed out also the absence of the figure of the Head for the Design for All and the existence of just one university that has a quality certification.

Among the most favorable results, stands out the advances on accessibility in buildings, followed by those related to the accessibility in the transport. It is also noteworthy on one side, the generalization of school, personal and professional counseling services, as well as labor insertion and employability services; and on the other side, the divulging and dissemination of measures, services and accessibility programs. Adequate internal training of staff responsible for the assistance of students with disabilities is another satisfactory feature.

Results of the analysis carried out to the in person field visits

In this section we present the results of the monitoring conducted in the five universities selected for field visits. Into these areas of observation are taken into account accessibility issues as urban planning, building and transport, and other aspects related to communication, student participation and other procedural aspects or future-related.

Urban accessibility

The section on urban accessibility is initially addressed at a global scale and then passes to get insight into specific elements such as pedestrian and mixed routes, fords, ramps, traffic lights and signs, stairways in buildings, accommodated public services and other street furniture.

General

The results of the study field in terms of urban accessibility indicate a positive result in three of the five universities observed, with a "good" grading. However, in the two universities left there are obtained opposite results; one of them obtaining a "very good" grading and the other rated as "very bad" in terms of urban accessibility. This marked difference in two of the universities observed seem to be indicative of the wide variety of situations that take place in one same university between its buildings and campus.

The variable of buildings belonging to protected heritages is the one that gets greater negative rating because of the difficulties for altering the building to make it accessible.

Pedestrian routes

Three of the five universities studied obtained a positive assessment in terms of general characteristics from the campus walkways (unobstructed width, height free from obstacles, longitudinal and transverse slopes...). Although, it should be noted that slipping flooring and without projections, obtained a poor or very poor rating in three of the centres studied. The evaluation of the height of the curbs, however, is more positive, since only one of them gets a negative rating.

Mixed routes

Mixed routes get a slightly higher assessment than pedestrian routes, as four of the five universities visited achieved a score of "good" or "very good" in this regard. While new pavements are also mixed in the itineraries, which are rated slightly worse in the universities analyzed.

Fords

A similar assessment is obtained from the fords in these universities. Regarding their main features, four universities are rated positively, whereas in the case of pavements, only two out of five centers got a positive score.

Stairs in buildings of the University

In the case of stairs from university buildings, the accessibility assessment is positive in four of the five universities. The fifth university receives a very negative assessment in all aspects analyzed, stairs, floors and handrails.

Notably, as in the preceding paragraphs, the pavements are the least successful aspect in terms of accessibility. Just two universities receive a positive rating. Besides, there were also noticed some other problems, even in some cases where the overall assessment is positive. These detected problems are listed below:

- Slipping pavements.

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- Lack of handrails on both sides.
- Lack of non-slipping strips.
- Lack of contrast on steps.

Ramps

Ramps obtain a similar assessment to the issues discussed above, where one of the five universities studied get a very negative assessment, but the rest are generally rated as "good" or "very good" in this category.

Accessible public toilets

The issue of accessible toilets in campus reaches positive values in all the universities, since, by general terms, this is usually resolved quite satisfactorily.

The most widespread deficits in this section are due to locked doors. One has to go to the concierge's office specifically, sometimes with a long way to get to it. They justify this fact as in benefit for the students with disabilities, since common students will not use these toilets.

There is also in some cases the lack of space for maneuvering in toilets that are categorized as accessible.

In an extreme case, it was noted that there are some buildings or faculties without any accessible toilet and the existing ones have steps in the entrance to get into them, even for accessing to the water itself.

Street furniture

In regard to the valuation of street furniture in the campus, it should be emphasized that four of the five universities receive a positive assessment in both urban furniture organization and in the signaling and traffic lights. In the design of street furniture is where one university gets a negative rate.

There is the singular case of one university whose main campus is spread throughout the city. Hence, there is not a proper campus with a defined sense of space. The barriers and furniture deficits from the street extend to the campus and, since being a city with quite antiquated components, there is the exponential need of changes in this area. In here, it appears again the variable of protected heritage.

Traffic lights with audible signal

In the five selected universities of the study field it is stated that inside the campus there are audible traffic lights, which in light of the results noted, this as one of the most highly valued aspects in the centers observed.

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However, it is needed to clarify that not all of them have audible signal and that not all traffic lights belong to the campus but rather are to the towns, without forgetting that campuses are mostly pedestrian.

Signage on campus

The signage on the campus receives different ratings depending on the type of signaling studied. In the case of visual signaling used in the campus environment (visibility, adequate size, color and clarity), this is the highest rated item, with four universities evaluated positively. However, the score that the touch-signaling system receives (for items such as fords, lights, and stairs) is significantly negative in all the universities studied.

In relation to the campus signage, it should be noted two different situations and areas:

- The best cases detected are related to the general signage located in main buildings or in the main entrance of some faculties and schools.
- A different issue is the signage from offices, and similar areas. It is one of the weakest points of urban accessibility; in fact, the evaluation manifests the need to strengthen this section. It should be noticed, moreover, that it could be useful to incorporate the guidelines that urban accessibility and cognitive impairment workgroups are which are currently working on in order to get that it be clear, intuitive and simple; in other words, accessible.

The acoustic signaling is narrowed down to speakers and alarms located in some buildings and which as emergency or evacuation warnings. In the inside of some elevators there is acoustic signal.

Accessibility in buildings

In terms of accessibility in buildings, the analysis of the considered aspects is focused on university buildings, routes, ramps, stairs and lifts, adapted changing rooms and general signage in buildings.

University buildings

The fundamental problem in assessing the accommodation of the university buildings under observation is that these are not a homogeneous whole. In fact, they are not even really grouped in a common space or campus, in the strictest sense, but there are usually several sub-campus or coexisting campus or even they are spread throughout a local shared space improperly named as campus. Even the cases that get close to a homogeneous model with its own campus, there are variations, sometimes very sharp ones, between the different buildings, depending on the age of construction, according to the different coexisting building ages there are different degrees of accessibility.

The inconsistent rating in this section is an accurate reflection of the variety and heterogeneity detected in the university buildings, including regarding accessibility.

Itineraries

This is an area pretty well covered usually in four of the five universities visited. While the existent wideness and variety in the campus is again something to note, since they are internally considered very diverse.

In some cases there are significant inconsistencies in the itineraries. It should be noted the case of a university where access ramps have been built up to the first floor level, but they lead to another set of inaccessible stairs. Another one is the case of a university cafeteria with fully adapted toilets, hand bars and furniture, whose entrance door is inaccessible.

But as previously mentioned, the greater problem of accessible doors in old or protected buildings are:

- Heavy doors and difficult to manage by the majority of users.
- Doors with limited maneuverability angle.

Ramps in university buildings

Ramps are the most ancient icon of accessibility. Its implementation was the first round of performances in accessibility, the most popularly identified in this field that was accompanied by the elimination of obstacles such as steps and stairs. That is why four out of the five universities included in the sample, achieved a highly satisfactory rating in this area.

Lifts in buildings of the university

Again, there are four universities that obtain a good or very good value in assessing the general characteristics of lifts. As with ramps, lifts are a staple that identifies with accessibility. It would be, in fact, the second element of popular identification regarding accessibility. Therefore, the five universities get a positive rating regarding accessibility of the doors, while banisters and keypads get a "regular" rating.

This way, pending actions would not be about doors and interior dimensions but about signage and visual and auditory accessibility.

Stairs in university buildings

The stairs from the university buildings get a quite polarized rating. Two universities get negative ratings in terms of steps and banisters, while three are rated as good or very good in this regard.

Similar to the stated in the paragraph about access stairs to university buildings, in stairs from the inside of the buildings, they repeat the same pending points in some of the universities: banisters, non-slipping strips and contrast in steps.

Accessible dressing rooms in sports facilities on campus

Since they are more unified facilities, with its own and independent character, despite they are inside the limits of the correspondent campus and have relatively small size, they do not present much difficulty or need as much intervention as other facilities or buildings, or involve excessive cost in proportion as a general rule. However, although the doors, appliances and mechanisms from the accessible dressing rooms are positively rated in the universities studied, the individual adapted shower is rated only "good" in two of the five universities.

Signage in campus buildings

As previously stated in the analysis of results from the interior of the buildings, the signage is one of the least developed issues in terms of accessibility and the ones that need specific interventions. Especially, in the case of tactile signage for areas such as stairs, elevators, the five universities visited receive a "bad" or "very bad" rating in this regard.

Transport accessibility

The observation carried out in the transport field and its accessibility state, the observation considered as verification points the bus stops, the same buses that get to the campus set in the city or the public parking area available in the universities visited.

Bus stops within the campus

In the study, there are not detected intra-campus bus stops. The reference is obviously to those stops that are initial and final destination or in the way stops to get to the campus. That is why this issue concerns to the cities or autonomies rather than to the universities, since they are responsible for the urban an interurban transports.

Local buses to get to the campus

It was observed that in most cases, there are accessible buses, but just some of the buses and not the entire fleet.

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The most negative rating is given to shelters. However, just as the section of bus stops, this issue belongs to the local or regional competence.

Public parking on campus

Since there is the existence of a minimum reservation of parking spaces in the five cases studied, and without any negative assessment of them (four are rated as "good" or "very good" and the fifth as "regular") we can conclude this is satisfactory solved issue.

Communication

There have been considered two types of communication in the analysis of the state of accessibility: the non-interactive and the interactive communication type.

Non-interactive communication

Within non-interactive communication, there are considered visual, acoustic, and tactile (hands and feet) information systems. In this regard, it is worth noting that only visual information system has received a positive assessment, and just in two universities. In the case of acoustic and tactile information systems, both systems are rated as "fair" in three universities and "bad" in the other two. This result proves that this area corresponds to the field of accessibility adaptations labeled as second and third generation, which present a lacking and offers unprecedented action fields. Also in this case, podotactile elements receive the most negative assessment, rated by the five universities as "very bad".

Interactive communication

In all the centres it is stated the availability to provide solutions to facilitate interactive communication. However, the grading of that issue requires the consideration of differences between the level of availability of these media in relation to the existent needs. For example, this is the case of the case of the provision of a sign language interpreter (SLI); the availability of magnetic loops in some faculties, centres or main zones (such as the Assembly Hall) and the absence of them in other spaces, whose need is covered with a carrying magnetic loop case just partially or at specific moments. Similar situations apply to other accessibility devices for interactive communication.

Student participation and planning

Finally, this section details the results related to the role of student associations, organizational channels for future demands, latest testing procedures and the last diagnosed needs and actions taken.

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Collaboration of student associations

The collaboration of these associations of students with disabilities in institutional activities, in services as well as provision measures to boost accessibility, takes place in the five universities observed. In fact, this finding is consistent with the fact that many assistance services to students with disabilities are organically framed together with areas of volunteerism, social action, student engagement, and so on.

Reasons for not carrying out further actions for the development of accessibility at the university

All the universities analyzed argue economic reasons as the main cause for not developing more initiatives in the field of accessibility. As a second reason, among the five universities there is needed to stand out technical reasons derived from the protected or ancient quality of the building. The third reason would be the lack of awareness and sensitivity. However, considering not necessary the development of actions that facilitate the accessibility has not been mentioned in any case.

Prospective

Anticipation channels for potential future demands

According to the five universities of the study, all of them have channels that include the anticipation of the demand of students that allow enrolment in future years. Thus, the most cited channels:

- The open days in High Schools.
- Coordination and contact with Psycho pedagogical Guidance Department from high schools.
- Initial contacts with potential students about the entrance examinations to the University.

Procedure for the detection and consideration of accessibility requirements in the case of students already enrolled

There is a greater tendency to avoid that the student have needs so that when he/she gets to the university the centre has already reports and guidance from his/her previous study stage (except when it is an unexpected situation).

The process generally carried out is as follows:

1. Evaluation of circumstances.
2. Detection of needs.
3. Information to professors.

4. Guidance during all the degree.
5. Provision of guidance for employment (with or without specific actions).

Recent actions taken in accessibility

Among the recent actions carried out in the field of accessibility in the five universities under observation include:

- Physical accessibility alterations.
- Ramps.
- Unevenness.
- Itineraries.
- Signage.
- Miscellaneous resources: sign language interpreters, electronic magnifying glass; assistive software.

Top needs identified

The latest needs identified in the universities observed are detailed below:

- Improvement of itineraries.
- Implementation of non slipping pavement.
- Implementation of handrails in stairs.
- Inclusion of magnetic loops.
- Improvement of signage.
- Improvement of furniture.
- Improvement of web accessibility.

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Recapitulation

To summarize, the field observation of the five selected universities, allow to detect different realities of accessibility regarding the university. Specifically, one of the universities studied, obtains quite negative ratings for most of the areas observed (urban accessibility in buildings and transport, as well as other aspects of communication, student participation and other procedural aspects or future).

On the opposite side, there are accessible public services, traffic lights with audible signal, public parking and collaboration with associations, which all five universities receive positive or neutral ratings.

PERCEPTIONS BY THE UNIVERSITY STUDENTS WITH DISABILITY

Introduction

In the section it is presented the discourse analysis of the interviewed students with disabilities. This analysis follows the chronological order of the students' life trajectory, taking as an interpretive axis the hypothesis that the students' past and present experiences and future expectations have been conditioned by their educational paths and the social scenarios that have lived in.

In a first block, there are pre-university contexts in which respondents developed their compulsory and post-compulsory education: the accessibility conditions, the services and resources used, and the role of their family and social networks. There are also reported declarations on the decision to go to university, choosing a career, and their expectations about it.

In the second block, it is shown the university world from the perspective of students with disabilities. Personal accounts are used to describe the social environments of this education stage: family, friends, teachers, service staff, etc. Special emphasis is placed on the perception and assessment that students with disabilities apply to the accessibility, as well as to the general resources and services and those aimed at the student population with disabilities.

The time sequence ends by exposing the reflections of students with disabilities about their educational pathways and expectations with respect to what constitutes the culmination of the process of socialization into the labor world. It presents the work experience they have had, and their expectations about it, linking them with their university education.

Identities and meanings of disability

Interviews allow the confirmation of the importance of disability in the identity of the individual and the effort involved in studying a university degree.

""Nobody gives anything to anyone for free and certainly not to us, then you need to do more and sort myself out. If a person can do something, I do I have to double effort (...) I, especially with teachers, I'm such a pest with give me this, and being always on them because if not they leave (...) I'm very constant, very persistent, always there, doing things (...) being very tiresome, to simplify" (Visu/hear-David-23-M-worker)

If the effort appears to be the common identity criteria for students with disabilities interviewed, their different perceptions of reality are conditioned mainly by the moment they have acquired their disability. Thus, the perception of the university environment is influenced by the process of signification of disability, depending on the moment in their life they have been affected by the deficiency.

In this sense, it is perceived disability as a strength: several students have thought about the way in which disability has caused them a great adaptive capacity. Diversity on practices have been identified with what could be considered as a "disability culture", in other words, formulas or ways to cope with their disabilities in daily life and as university students. Some of them recognize that their status as a person with disabilities has led them to become good students and professionals, enhancing their capabilities.

> *"You even value everything most; the fact that these last years that I have felt so bad, I couldn't go out, not being able to go out shopping or to eat ... well, and it still goes on, I'm still eating in plastic cups and plates because leaning to do the dishes is horrible, I know the trick for everything, just as I told you. You would not believe the capacity for adapting that a person has for transforming their surroundings for it, it is tremendous. (Motor-Sara-28-W-High)*

Among the variety of stories, two trends are detected in the manner in which these young people live and see their university experiences. Some people prefer to remain anonymous, since they value their privacy, and avoid asking for help and do not like to be considered part of a collective; that is why they do not believe in associations. And on the other hand, there would be those who have had a positive collective experience (in terms of solidarity) and value it as a way to set the social place of disability (through treatment information or knowledge of rights). For them, the visibility and participation as part of the university community is essential to raise awareness and effect change. These two approaches agree on the need of keeping alive a spirit of complaint about their rights, to seek solutions that enable them to achieve "freedom of movement."

> *"Now I avoid everything that involves asking for help, is a question that maybe people can say 'She's such a pest'; but always: is it accommodated?*

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Does it have bathroom? Is the bathroom accessible? I always ask the same questions. I look for my freedom of movement, because otherwise I can't go anywhere, and this is too much for me" (Motor-Patricia-27-W-Media)

"Before, at school, my father came, and so, yes, no problem, and now it is not so, this is different. You have to act by your own. I receive explanation on how to do it, what she can do, then I go and explain the people in charge what is deafness, which I do not know what it is, then they go to our association, they are being explained what it is to be done to improve, to get a university that is also accessible, since it is public ... "(Hear-Crash-20-M-High)

Pre-university educational paths: from compulsory education and post-compulsory education to the choice of a university degree

Compulsory education and post-compulsory education

The analysis of the perception of a learning environment such as the university cannot ignore the students' previous educational trajectories. These experiences in the early stages of compulsory and post-compulsory education -both in high schools and vocational training- have a decisive influence on the configuration of the student as such and in his/her other facets and in the decision about the continuation to higher education.

In this way, schools, high schools and families are the basic socializing agencies for the development of the individual and his/her social integration, becoming also a formal distribution mean of labor and social positions. As noted by Funes:

"The process of social integration is conditioned by what is happening in the school and the first experiences in the world of work, it is the result of educational attainment and occupational opportunities" (Funes, 1990:46).

Thus, inequalities in education, access, resources, etc. result in social cultural, economic and political inequalities. For this reason, it is through the proper relationship between the individual and the institution which will attain complete social integration.

The analysis presented below is determined by the sample used in the study. The youngsters from the sample are aged between 18 and 35 years, which set the pre-university experience explained in this study between 1982 and 1997. The intention is not to conduct an analysis of the situation in schools and high schools from the past, but rather show previous educational trajectories to integrate them into the whole of the university student. The second needed clarification is that the students from the study sample consist of students with disabilities with academic success,

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understood as having got to higher education (necessary condition for the central object of the study: to determine the perception of the university environment by students with disabilities).

Despite this distance in time and the condition of being students with academic success, their way to get to the university has not been easy for the great majority of them. Multiple changes from study centers, difficulties to access and of resources, and educational issues with teachers and principals, all of them have been obstacles in the training trajectory of the interviewed students until they got to the university.

The fact that drives our attention is the constant changes of center that most of them have been through, regardless of their disability. These changes are due, in some cases, to the non-acceptance (inclusion) of students with disabilities, and in others, because of the center awareness of their inability to offer a quality education conditioned by lack of resources and accessibility.

> *[Talk about the change to high school] "For me it was especially difficult because it is not that I am a bad student or that I have been expelled, but I've been in a lot of high schools [...] I've been in a school and then I've been in three high schools [...] I changed for that reason, because there were always alterations in the building, it was never for ...yes, the only time I changed was because we were sent to a pretty bad area, pretty marginal area in Alicante "(Visu/Hear-David-23 -M-Worker)*

> *[In a primary school] "I was told I couldn't be there because I was disabled and there was no integration and I started studying in the 82, nothing had started yet, then they did not feel able to teach me and I had to go; I was given a special education phone contact, as I told you before, and that was where I studied during six years. [...] I was there during all the primary education and for ... because of things that happen in life, we had to move to Alcalá de Henares, and I had to do my last primary course (8th grade) in Alcalá de Henares. No school wanted to take me in, already in the nineties, there was integration, but no one would get me because I was going to do the last course and they had integration only till 6th grade, it was a leap that it was not planned, so I came because they did not want to accept me ... we had to go to a multidisciplinary team, and from there, they forced to one of the schools to admit me. "(Motor-Nube-23-W-worker)*

Another general problem identified is the lack of real accessibility in educational centers. Problems they had to live with during the entire compulsory and post-compulsory education and that were coped with the aid of social and family networks -family, friends, teachers, volunteers etc.-, with the enhancements that centers were carrying out as the time passed and then the incorporation of students with disabilities and, above all, with patience, will and effort. In this sense, students with motor disabilities are the group that rebelled most as the most affected ones in this kind of inaccessibility.

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"The school was not accessible, but hey I still did not have the electric chair, there were few stairs but it was easy to handle yourself. Then, my mother helped me, brought me there and collected me every day, she helped me to go upstairs and downstairs and after the break, the teacher helped me. The truth is that teachers were always very good and then during the break were the companions who took me around because it was a chair that did not have or that I could not have pushed myself, well, things that help you with no big problem. [...] If I wanted to continue in the school it was my mother who had to take care of getting me upstairs and downstairs, well, my mother, my parents or anyone that they could set or be sent on their behalf [...] I had to stop going to the playground, because my mother had enough to move me every time, and also in the afternoon, only for half an hour, and of course my friends wanted to be with me, wanted to be at the classroom, the sister who was teaching us in third grade was good but she couldn't leave all the children there, then she said come on, we'll make a list, we will take turns. "(Motor-Ana-24-W-Medium)

"I had many problems in high school, because of the accessibility. I actually had to study at a distance because I had complications when ... because the problem from high school on is that there is a loophole. Then, mobility accommodations are not covered in high schools"(Motor-Claudia-27-W-High)

At a training level, all these situations have contributed to obstruct, one way or another, the education of these young people. To these inaccessible situations it has to be added the lack of educational resources to address the education of students with disabilities and, also, the professional incompetence and lack of sensitivity of some teachers.

"I was sent to high school, one with integration, a newly made one, was under construction when I started. It lacked the lift, so that neither biology, music or English classes, subjects that maybe I could not follow because they were upstairs, until my companions decided to get me upstairs" (Motor-Nube-23-W-Worker)

[At high school] "I had a bad experience because a teacher had it in for me, I do not know why, because when this gadget started, the Braille-speak, I began receiving that thing from that computer, so there was copy paste [...] And I feel pretty bad because I never used it for that, because actually my teacher from fourth grade primary to second year in high school, once accused me of copying, yes, he accused me and I did learn well all the articles and he said I could not learn as well all the articles of the constitution as, for example, a teacher of history. He said so, but you can't do anything else" (Visu/Hear-David-23-M-Worker)

"There was a guidance department, which was supposed to give you support and all these things. I got into this program, but ... although they said that I

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> *reached the end partly thanks to their support and such, I never received that support." (Motor-Nube-23-W-Worker)*

Despite this poor state of the schools, respondents confirmed that, although in many cases were not enough, they have had specific resources for providing education to students with disability through government or private foundations or associations. Students with visual and hearing impairments refer to resources related to school performance, while students with motor problems indicate indirect resources that facilitate access to education, such as personal attention.

> *"I gradually lost my sight, that's when I joined [it refers to the ONCE, a Spanish organization for blind people] when I already had needs, because I had teachers in the Basque Country, there were professional services that went in person to the high school or educational center once a week and there, they taught me techniques to orient myself and to study better because we are blind and we have subjects which are problematic [at high school] there, they treated me quite well and accommodations were going well and there were even support professionals to teach me Braille, to teach me several things, various techniques to orient myself and to develop my studies well, fairly well. " (Visu-Lorenzo-28-W-Worker)*

> *[The high school] "I started Castilian, English, Catalan and learned these languages that were very hard for me and at the end with the help of speech therapists [...] [About the Association ACAD] They helped me a lot when I was a boy, to get introduced into society, to show me new technologies, new hearing aids, new stations; it has also has created conferences about devices for the deaf, and explain to other hearing people about us, what is deafness and how to help others. It also helped me in being able to get speech therapists, not just the ACAD, but also the CREDAM and these things. They are associations that help each other, you know? To achieve the goal: to break the barrier of disability." (Audi-Crash-20-M-High)*

> *[About personal assistance] "I went with the girl that changed myself of classroom, she was like a security guard, because in the ESO [educative program in high school] people did things crazily, but I don't know, it was more ... [...] it was the reason for me to change from classrooms and all that because I didn't know much about going in a chair. It was the beginning of everything and she helped me on all routes and all that. (Motri-Roser-20-M-Worker)*

The experience of the interviewees shows that pre-university educational environments did not facilitate the socio-educational integration process. Despite the difficulties described (referring to the reality of schools and high schools a few years ago, since it was what those current university students experienced) there have been also analyzed success stories. A success based on the will and in a culture of overwork. Despite the changes of schools, the inaccessibility, the inadequacy of

resources, unskilled teachers, etc, the vast majority of interviewees made a positive assessment of this stage, mainly for favoring their social integration.

> *"My high school, first course, the best place of my life, because of my friends…" (Motor-Ana-24-W-Middle)*

> *"I did high school in a public school, as well as elementary school, I have always been very well received by both teachers and peers, in primary and secondary" (Hear-Albert-19-M-High)*

Choice of university degree

In contemporary western societies it is tended to give high marks to educational attainment, related to the subsequent social recognition and career success: achieving not only integration but also social visibility. The personal decision of continuing the education after finishing early and middle stages is influenced by each individual's family, social, economic and education contexts.

The heterogeneity of interviewees, both for their socio-demographic and family conditions and for the type of disability or for the host university, causes differences in college expectations in the choice of their careers and the meaning of getting a university education.

Each family is a unique social set-up and has specific characteristics that make it different from the rest. The ways of educating and bringing up children are different, since the social and economic circumstances of each family and the life situation of its members are specific, what favours considerable diversity. The task of this study is, however, to reduce the complexity of social reality to make it understandable. In social sciences there has been used the concept of social capital, it refers to the dimensions of social relationships that facilitate the implementation of certain actions and promote the achievement of desirable outcomes (Bourdieu, 1984). Thus, taking into account the social capital of students' families, it can be stated that, although the high value given to university education is shared by all social strata, its meaning and its choice varies depending on the group they belong to.

Therefore, in families where the mother or the father have lower education levels and lower purchasing power, the student's decision to pursue a university education and the choice of a degree take on a much more instrumental meaning, i.e., of being a path to access to the labour market, in a scenario where the social integration and autonomy only go down that road.

> *"What does it mean for you studying here? To me it means to get a university diploma, to be graduated and get more aspirations. It would be a labour meaning. Yes, a labour one. (Hear-Pegaso-27-W-Worker)*

> *"I decided to go to the university because I use a wheelchair and there are*

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> *less work opportunities for me than other people; this is a reality. I thought that if I studied I would have more chances than without studying. And so I decided to study. At least, I will have more possibilities. [...] [On the choice of studying Business Administration and Management] Because it also offers many types of work opportunities, not only one, it is very large the range you have, as marketing, human resources, accounting –although I do not like, but is OK. There are many types of work. (Motor-Roser-20-W-Worker)*

By contrast, when there is a transmission of greater social capital, the aspirations that students say about their education, without losing track of the working world, adopt a meaning more focused on social visibility.

> *"I've always done it because I wanted. I've made a career of five years because I wanted because I could have made one of three and that's it but I decided to do a five one because I wanted to [...] Besides, for a person with disability that is also important because as I said, people who do not have the () highest one, because if you do nothing in life one is thinking, is worried about constantly. However, if you are studying and all that so…" (Motor-Dyox-23-M-Middle)*

> *"The first thing ... I said was that I didn't choose the same degree as my father. I thought this. No, I am going to do what I really like. But it coincided with it. It coincided that it was also that same degree as my father's. What I liked was the creation, new things. [...] We are also from the first deaf people who go to university. Will we be able? Come on, try it. Come on, yeah, yeah. We're studying. [...] There were many things, many people involved. My parents told me to choose what I liked. It does not matter if I study or not. Just I knew deep down that it was more important to have a degree. But the most important thing my parents said, I remember, it was really to choose what you like. [...] Also told me that nothing happens if you go wrong, if you see you do not like architecture, nothing happens, change degree and that's it, or leave, or whatever. You could always try. There is another option" (Hear-Crash-20-M-High)*

Expectations about the university and the choice of a degree are also conditioned by the type of disability and the type of university you are going to access. Thus, students with motor problems emphasize the accessibility of the center, the degree of autonomy they may have and their own limitations. These concerns are heightened when the university has fewer resources and disability student services.

> *"I chose social education just like that; I didn't know what it was. I made my online registration in the last day. I was between psychology and social education and I thought that social education consisted on three years, and I took it. I was a little bit conditioned by the buildings; (...) it was very complicated because of physical accessibility... Yes, yes." (Motor-Duna-23-W-Middle)*

The concerns of students with hearing or visual difficulties are focused on the educational and social aspects of the university: own limitations, specific educational resources, teaching, friendships, etc. In these situations, services and resources of the university are not so significant. One possible explanation for this lies in their previous educational experience, which most of the services and resources were not so much obtained from the educational centers but from foundations and private associations.

> *"What do you expect from university, did you think how it would be? I knew that the university was difficult, it was a big change, because it meant meeting new friends, finding a teacher different from high school, together with the assistance ... I was always finding out if I'd had the chance... peers, I found partners of all kinds, easygoing ones ... and now, at an educational level that you expect it to be more complicated, more ... at an educational level was the first year ... because there was so much matter, because in high school always studied the issues for one exam, and here, of course it was a whole subject ... I did not know how to adapt to the university, but of course I've never been one of those people who need support and ... I've always been a person that when, how you say, don't need ... they be always breathing down my neck" (Hear-Pegaso)*

Accessibility of the university environment

Each type of disability has specific problems of accessibility in the university environment. While for people with motor disabilities, accessibility in physical terms is in the foreground; for those who have a visual disability it is fundamental to get access to audible information; and for those who have problems with hearing, speaking and writing is a fundamental need for interacting with the world.

The path to universal accessibility

Accessibility, conceived as the necessary conditions for taking universities studies on equal opportunities, comprises various fields that include the students' daily lives: housing, accessible transportation, technologies that function as body extensions (hearing aids, wheelchairs, audio recorders, accessible keyboards and mouses, etc), as well as accessibility to the web and the teaching content.

> *"(...) All these are really silly things but you can't imagine how big are for us. I mean, what it means and getting every ergonomic achievement is a nightmare but when you get it you say: this is heaven" (Motri-Sara-28-M-High)*

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On the other hand, minimum accessibility conditions do not guarantee these can be profited by people with disabilities. In this sense, students noted the need to raise awareness the rest of the population so they can be respected.

> *"Parking for people with disabilities (...) they are not respected by anyone and this gets me mad (...) I have to park, I always find the same problem (...). Accessible bathrooms are not respected either, people use them as they were ... you can stay there half an hour waiting for them to come out, but as they are in..." (Motor-Patricia-27-W-Middle)*

For students with disabilities, accessibility is measured in terms of autonomy and its exercise is determined by the existence of resources and their implementation, and also implies the awareness of society as a whole.

Most of the students surveyed expressed feeling part of a generation of people with disability who has lived a social change towards more inclusive environments, at least in regard to physical accessibility. However, when the students are asked how it should be an ideal university environment, they speak about having a range of options that allow the organization of everyday life and academic performance of any person, regardless of their functional attributes, on equal conditions, taking into account the diversity of needs.

> *"So as equals, but keep in mind that maybe my rhythm is different and I have different needs (...) I think it's the choices, that it is not really considered that possibility, I think that they tend to make regulations and laws so that people can get to university but I think they, at most, are referred to just the architectural barriers, no more, because for the rest there are no options " (Motor-Laura-27-M-Middle)*

It has been also pointed out the need for getting coherence between the regulations and the practices and realities in the university. This would imply a revision of the viability of existent accommodations, which, occasionally, makes the situation more complicated rather than facilitating it. According to the interviewed students, there should be taken into account the experience of those students with disabilities when carrying out accommodations.

> *"Above all, these should be carried out taking into account the people who uses that space, as you were saying now, I mean, that it be not just made of a group of technicians, but also of students using the facilities, who can assess its accessibility (...)" (Motor-CV-27-M-High)*

> *"There are many actions to get more accessibility to a universal level but there are many things, there has to be done much work and a lot of things more (...) they are already starting to make laws, but now they have to be complied with (...) We are also privileged [benefiting] (...) Old things have to be accommodated to the new ones and the new staff be set as they should be" (Visu-Lorenzo-28-W-Worker)*

The university experience: the social environment

The educational activity is a process of interaction with others: starts in the same family, it comprises peers, professors... it is part of a larger social process, includes the dimensions of accessibility as a facilitator or decliner, a journey that is followed by a strong desire for personal autonomy and participation on equal terms.

University education as the realization of autonomy

The discourse of the students interviewed place the realization of a university degree as the way to achieve an independent life, to feel integrated with the rest of the people from their generation.

> *"Coming to the university and realize that I really could have independence in here, but there, at school I always was depending on partners or teachers or whomever, and the truth was that it was quite overwhelming" (Motor-Laura-23-M-Middle)*

Family support

Family support defines, to a great extent, the direction of the educational trajectory of students with disabilities. From the perspective of most interviewees, the family had made it possible they are currently studying at the university -regardless of their economic resources and the student's effort. Students with a disability from birth spoke of socialization focused on the acquisition of social tools necessary for their social integration.

> *"I have a family that, luckily, has always helped me, I've always being supported, without them I'm sure I would not have got where I am, because since I was a boy they believed that I should speak and that all means would be available to achieve it. When I was little, two or three years old, I was not wearing hearing aid and had a very important language delay, so they helped me everything they could to compensate it and that was very important, my family has supported me all the time" (Hear-Albert-19-M-High)*

Some students point out the emphasis that their parents have placed on the need to have an academic background as a way of accessing to decent employment and have greater autonomy.

> *"I think it is necessary that universities keep places for the disabled because it is what my mother says: my sister is 18, for example. If she stops studying she can work as a cleaning lady -with all my respect for people that do that- but I can't, I have to study, I have to be professionally trained to do a job that allows me and my physical condition to lead a normal life, being disabled you have to be rich. In other words, is a very harsh reality but it's like this" (Motor-Claudia-27-W-High)*

About fears and disorientation of parents

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Without distinguishing between students with different types of disability and social background, the disorientation of the parents towards their children's situation seems to be part of the university experience of young people, especially in cases of a recently acquired disability, when family's dynamics and expectations change abruptly.

> *"So, in my home environment, at first I had to go with my mother to come with me to the orthopedist and then I decided that my mother wouldn't come any more because she came out crying and I was crying... I, in part, I feel guilty because during the university years, when I was with arthritis it was a constant stress of hours without sleeping, because everything was a out of control, everybody were disorganized. The planning did not correspond with that of a normal person. Then, when I started getting like this, actually there were no changes in my family, they were blocked" (Motor-Laura-27-W-Middle)*

Some students tell the fears and prejudices of their parents to the fact that they study a university degree, since it means managing independently at the university and or having a potential failure in seeking employment as a university graduate with disability.

> *"My father agreed, my mother thought I would not be able, that I should not, that I had to stay gaining the disability allowance, that how I got into it (...) yes, because she thought that nobody would hire me, that I would have many problems ... My mother is from a small town, when I was younger, well! "Where are you going with that wheelchair?" you know? and she found obstacles, closed mind (.. .) My parents, in this regard, they have always been putting obstacles for having a normal life, going to a party, my mother especially." (Motor-Dyox-23-M-Middle)*

> *"My parents had it very clear that I had to study, like my brother. Maybe to them I couldn't have and independent life, it was clear, (...) they thought I always had to be at home, to my mother the fact of going out alone or of putting on a pullover, it was "Oh! My God! I'm coming and I put on you, I'm quicker" (...) but regarding studies always, I have never get rid of that" (Motor-Nube-23-W-Worker)*

Given these family fears, the youth with disabilities have had to develop strategies to overcome them and gain access to university education. In most cases, this process has been reinforced or motivated by emotional support from their social networks, identified by them as critical to the achievement of their studies in difficult times: friends, relatives, teachers and, sometimes, the professionals responsible for their healthcare.

> *"My father was used to manage their children his own way and I had to say 'hey! here ..." **How did they live that situation**? At first very bad, but well. But that's what I say, as long as I'm a responsible guy, not drinking either drugging me and take my degree studies forward and yes, that they could be*

better, obviously, because this is my sixth year, but I have to live also. What good is being five years embittered for me? or taking one year more and having spent a great time " (Motor-Dyox-23-M-Middle)

***"How did your friends support you?** In the fact, strengthening my good side; that I really became realistic; that I have to take care of myself because I had excessive stress. Because many people, of course, they looked at you and said, 'Oh, poor girl' then the fact was saying No! No charitable souls! I know I have this and that I'm going to have to learn to live with it, but I don't want this to prevent me to continue doing what I really like'. It was the act of affection, the fact that they supported me in everything, but as a person, not as a poor creature who can't walk. I think it is very important, that kind of environment is very important when you have to be able ..." (Motor-Laura-27-W-Middle)*

"I think my doctors who for me are people – this is going to sound very strange but I have a special relationship with them-, are people I love most in this world, I owe them much. Many times, the ones who have been there were my doctors, that is, many times I've needed a hand and has been the hand of my traumatologist, my therapist or my neurosurgeon" (Motor-Claudia-27-W-High)

Interaction with peer groups and professors

In reference with the experience of interacting with their peer groups in the university, most students reported that they had noticed a drastic change between the environment in high schools, in which are often generated friendly ties with fellow students, and the university environment, in which they explained having felt quite isolated.

"The truth, it was a bit shocking. I was used that at high school when I went with a legion of people, I don't know, we were many people always, 10 or 15 people and I was never alone (...) when I got here, I arrived alone because only a friend came with me here (...) to be around people, friends, to be here the first year almost without knowing anyone (...) here people don't mind (...) there's no solidarity, here people go to their own and it was hard for me to get used to (. ..) And outside the university I have always felt very integrated, always" (Motor-Dyox-23-M-Middle)

"I have a group of friends I made in high school, and more people from high school than from the university, because there is more people in the university ... is more competitive and are a little more closed ..."." (Visu/Hear-David-23-M-Worker)

However, almost all young people identified as very important the support role from classmates in regard to the assistance to the limitations they found: to provide notes,

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share information, helping in mobility, etc. However, students with disabilities value a lot their ability to live independently, so trying to ask for help as less as possible.

> *"I have a colleague here, any problem I had, knowing that she is there, a person who always tries to help 'when do you have your test?, or whatever Well, I go with the car and then I will take you' (...) The case of being aware that I deliver the test, people come out and she is standing watching if someone takes the test and hands it to the professor, because I can stay [without being able to stand up for her back problem] it has happened to me .... With the notes she has always lend me all her notes during all the degree" (Motor-Sara-28-M-Alta)*

> *"At first I hadn't battery in my wheelchair and this girl came with me (...) but then, what happens? This girl is very different from me and I maybe ... I was getting close-minded being with her ... I didn't join with other people, do you know what I mean? That when you depend on someone you don't do what you want (...) and I did everything according to my classmates" (Motor-Duna-23-M-Middle)*

The experiences vary according to the type of educational center and degree: in some, it is promoted an individualized learning and competitiveness, leading to a greater degree of isolation; in others, it is promoted -or required- group work or group study, which favours the integration between the partners.

> *"The degree is very competitive, very hard and it depends on ... the way it is focused, for example, like you don't have to be an architect to build houses for families, but you have to be an architect to be a mega star. So yes, to be a star and be published in magazines, at all hours, so of course, this way of instilling (...) it is a complete bohemian alternative" (Motor-Sara-28-W-High*

> *"I expected nothing else and that's when I was very disappointed because I wanted to go out with my classmates, go for dinner, more fellowship, what we are going to do. If I could, in computer science degree, I would change the fact that the degree is planned for being done individually (...) you have to do your practices by your own alone, you have to do your staff, your assignments, there are self checkers systems. (Visu/Hear-David-23-M-Worker)*

> *"With classmates, this really has been a key point, because all classmates are shocked with a new situation where they are quite lost, then they work much more between them, in couples or three people, in group, so if anyone knows how to do something and others don't, then that person explains it" (Hear-Albert-19-M-High)*

Negative experiences

The most negative experiences, ranging from a collection of traumatic incidents to the change of degree or study center, and dropping out from university, are mainly

due to two different reasons. On one hand, because of the lack of universal accessibility conditions of the center, the absence or lack of performance protocols (administrative and technical) for students with disabilities and the inadequacy of curricula for people with disabilities. On the other hand, it is due to the lack of awareness and training of the administrative and teaching staff.

> *All the semesters that only I could do one or two subjects I had to pay the two hundred eighty-two Euros, mandatory minimum rate you have to pay for registering (...) Everyone told me 'look, but you are right, and so, but the thing is that here no, you know, so good luck!'. Everyone passes de buck (...) Everybody with a lot of education, a lot of respect and sensitivity and delicacy due to my situation, which to me it is a trauma having to explain my situation and not breaking out in tears" (Motor-Sara-28-W-High)*

> *"I have met twice that two professors haven't wanted to put a device, the FM (...) because of fear. Because I told him, 'Hey, this goes through radio waves, only it's me hearing and such'. 'How is it? Through radio waves? Oh, oh, oh! Anyone could hear me, right? '" (Hear-Crash-20-M-High)*

> *"There are very motley professors (...) everyone has their things on their mind. For example, the other day I raised my hand because I had a teacher who was talking, teaching super fast, and I said 'please, can you speak slower?, a little more slowly?' and he said, 'do you know what I tell you?, say so to your mates'" (Hear-Pegaso-27-W-Worker)*

Social exclusion

Social exclusion includes all those attitudes of denying the existence of an actor or group. It has to do with ignorance, disapproval, but also with the fact of ignoring it. From this perspective, the lack of universal accessibility can be presented as a way of social exclusion.

> *"I do not want that somebody create a new association, and come to tell me 'we are taking you to a trip to nowhere', what I want is that things be accessible and if I want to go with my friends, my couple and my family..." (Motor-Ana-24-W-Middle)*

E-learning model

For some students with disabilities distance education becomes an affordable option for studying at the university, since it does not require a constant transfer to the university, they can organize themselves to work or to do other activities.

The "information society" allows remote access to the information required for the studies. Hence, in the two cases of university students that are taking distance learning system, the experience has been very positive. These students also indicate the willingness and sensitivity of the unit of the Disability Student Services and the

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faculty, who have shown interest in knowing which are their needs and meet them. Students have highlighted the human treatment as something they did not expect to find in a distance education, a system a priori considered less personal than other face to face.

In sum, the ground of the concept of accessibility of students with disabilities is the autonomy. Young people have referred to accessibility as a series of scenarios (social environments) that enable them to study on equal terms with other students, facilitating their academic performance and their integration into the university community.

> *"And what is the most important element of the university, what has generated such a good impression? I do not know if the university itself or the integration one feels in there, I mean, you don't feel someone different for being disabled or anything like that, what happens is that you can make a degree, the one you want, and you know you will be able to perform in some way, that is the confidence that gives you the fact of interacting with people as anyone else, the power to be in class doing what everybody is doing, I don't know, this is basic for me, that is the fundamental" (Motor-MJG-24-W-High)*

Perception, experience and assessment of physical accessibility

In the words of students with disabilities it appears the concept of "accessible university" in relation to physical accessibility. Many see the university as accessible, but also point out the difficulties and challenges that have had to overcome them and be able to start and complete the degree.

> *"The university is well accommodated. For me it is ok because, as you see, here is flat and there, there are stairs and I can sit over there and the people have also helped me if there is a step or something they can pull me up." (Motor-Roser-20-W-Worker)*

> *"Indeed there are some areas of the university, very few, you can't access either, but in general, the truth is that it's all pretty well done, ramps, elevators, is generally very well" (Other-MMR-20-W-Middle)*

> *"The progressive removal of barriers, that, Could it have been faster? Of course, but it went like that, and I think that was what helped me most. To be able to manage, that a person in a wheelchair is able to manage by him/herself in a city, without having to say, can you help me? There is a lack of awareness, so that people do not park on the ramps for example, here at the university I found one always parked there, and I said to myself from where the hell I get on the walk side now. Such details people do not realize about, so let's say that all this ends up burning-out" (Motor-Patricia-27-W-*

Middle)

Although the current regulation requires all public universities to have fully accessible buildings at a physical-architectonic level, students with disabilities perceive that this reality is long away from being achieved. In fact, their explanations contain repetitive references to their own demands and struggles for getting the university involved to make the faculty physically accessible.

> *"When I arrived I found that all classrooms from ground floor have stairs to go down. All of them have stairs. So if you want to get in the front row you have to descend a lot of stairs (...) your friends are the ones that have to help you going up and down. I started talking with them and after a few months then the ramp was set, an add-on ramp, (Motor-Dyox-23-M-Middle)*

> *"As I had such a hard time, you know, it was like looking at a stair and saying 'well, let's see what can I do' (laughs), you know, when my leg did not worked and all that stuff; indeed, I what it's like to spend half hour looking for a chair that is mine, because I asked the university for a chair also, with two written requests, with even the doctor (...) And now I keep it in the second floor. Is there someone going to take it for you? There is a concierge per floor (...) if he is in his office, good, if he's doing other things, since they close their office, I have to remain outside, and I have to see me looking for him throughout the university, and at the first hour in the morning, going up and down I feel worse, it is horrible. Then I have to enter a class that has already started half an hour ago or three quarters past the time to sit in the last row, do not learn anything and standing up, what I cannot stand, looking for the chair, I finally end up going home into tears" (Motor-Sara-28-W-High)*

Some university buildings recently built have not been constructed to be fully accessible and have later been partially adapted without universal solutions, and that does not satisfy students with disabilities.

> *""It's a university that was not intended to be fully accessible from the beginning, because it has two levels and for example if I have to go to the other building I must go up to the second floor, I have to go down a ramp, take the elevator ... What did they do? They put an escalator. But the four people in wheelchair at the university cannot use them. These solutions are very exclusive. On the other hand a device to raise the chair. You have to get on the machine that occupies the whole stair space, ask for the key, do not know what stuff ... the show of going down on with such stuff (...) that method blocks and everybody looks" (Motor-CV-27-M-High)*

The main physical accessibility issues in the university identified by the students surveyed are:

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1. Set of table and chair bolted to the classroom floor or set of not-bolted table and chair that are not accessible (only it is possible to adjust in a certain direction and height).

   "For example those tables, which are like to be for two persons", "(...) with built-in chairs, in block, then since I could not get in to seat I wrote on the side, trying to place a bit of the chair below it, sitting next to it." (Motor-Nube-23-F-Worker)

   "A normal table, it took months to arrive. Because they took measures from me ... I said a normal table, a high school table. And they brought me one, but they made it very high. And of course, at the beginning, when there was not that table, at the entry of the class there was a big table and I was sat there. And of course, I was set in front of the class and almost always I was sat alone..." (Motor-Duna-23-W-Middle)

2. Lack of accessible platforms or just few ones available for students or teachers in wheelchair to go up to make oral presentations.

   "Since we are sat in a wheelchair we have a lower view, If, moreover, you are doing an exposition and you have to be seen and be able to explain, you know, it is like you are sat in a chair." (Motor-CV-27-W-High)

3. Ramps, too steep.

   "And in the portakabins there are ramps but they are pretty steep and they do not work very well, I do not use them not with this chair, because it inclines back and I'm afraid. I go with a classmate who is at my back." (Motor-Duna-23-W-Middle)

   "There are ramps a little bit….too steep (…) there are very difficult slopes and I think they should think of the person who uses wheelchair and if he/she can go through them or not, for example, and also install elevators" (Motor-Roser-20-W-Worker)

4. Toilets for all users and specific accommodated toilets

   "Toilets, they sometimes think that by installing two bars in the toilets, they are accessible, and for example I always have to struggle with the bars, because I do not know how to handle them. And, if at least they were mobile, but there are fixed bars, static, and how do I get into, how I do it. Two bars here, you go with the chair and how do I get within? ... for example, such obvious things, the way they do them, I think they do so to get around the problem, they do not stop to think if that implementation really helps or hinders. And like that stuff, a lot more and everywhere." (Motor-Patricia-27-W-Middle)

5. Elevators with buttons too high for people on wheelchairs.

" I cannot reach the buttons... I do not reach the buttons (laughter) change the elevators I what they should do, they are a bit old" (Motor-Nube-23-W-Worker

6. Too heavy and non-automatic doors.

   "The door should be a sliding door, because this way it is difficult for me to open ... They are quite large and it is possible to come out with this chair but to come in (...) I always ask someone to open it for me" (Motor-Duna-23-W-Middle)

7. Students with partial visual impairment stand out the importance of campus lighting and that signage with indications, official notifications, and exams are written with large letters.

Difficulties in the transfer from home (home, student's accommodation) to the university

The difficulties of moving from home to the university have to do with the accessibility state in the general urban space. Depending on the city of origin and the university campus where students are pursuing their studies, the difficulty of the transfer varies. Below there are highlighted the main barriers.

1. Those who need to take the train (RENFE) to go to university stand out the difficulties that have met by doing the transfer by independently.

   "To come to the faculty the thing was like follows: I had to all the RENFE at least 8 hours before taking the train (...) and say at what time I was to take it and then a man waiting for me puts the platform (...) at the beginning they forgot about me; after they took me there (to Girona, where there is the university) then there was no one to get me down and mainly when I was alone... so I had to go back home." (Motor-Duna-23-W-Middle)

2. Those users who can use an alternative to the RENFE train and that is an accessible means of transport (the case of Catalan Railways) do not end up using it due to the cost on time and the existent physical barriers from the train stop to the university.

3. Those who do not use city or inter-city buses because they are not fully accessible and for that reason they go by car.

   "There are not many public transport facilities because there are not many accessible buses and that (...) I have not found appropriate buses at the time I had to come" (Motor-Roser-20-W-Worker)

   "Before I got the car I used to take the city bus, the thing is that it was annoying because you had to go out home hours before if you wanted to be on time at class or at specific places within the University and always if the

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ramp worked, if it did not work, the situation was 'I help you or I do not help you', depending the day. Then, when I got fed up of meeting a problem day after day, I decided to get my driving license and buy a car; thanks God I've been able to afford it, and with a car I have complete autonomy" (Motor-Patricia-27-W-Middle)

4. Those who can use public transport because the university manages it as a specific resource for students with disabilities perceive it as a very good solution.

   The Vice chancellor of studies manages all issues related to people with disabilities. They are the ones responsible for providing us public transport to get here" (Motor-Dyox-23-M-Middle)

5. Those who do not have their own car or a driving license (in some cases due to their disability) and they go on foot must face difficulties caused by the incomplete physical-architectural accessibility of the city.

   "Notice that maybe my rhythm is different and I have different needs. Maybe, for example, afternoon classes would be better for me because in the morning (...) days that I have to be at 8 am at class then I have to get up at 6.30 and you know.... I didn't have to get up at 6:30 am but at 5 am. So it's like it cannot be so" (Motor-Laura-27-W-Middle)

6. Those who have opted to take a taxi every day, since they have enough economic resources, or that use a specific 'door to door' taxi service (existent in Barcelona) which has accessible cabins and is financed by the city hall for some people with paraplegia It is the case of NPV).

7. Those who, thanks to financial support from the university, can go by car, because the economic situation of the family would have not allowed their admission to the university (as the case of Roser, low class).

Assistance Services and resources to students with disabilities

Below, there are exposed the services and specific support that were highlighted by the interviewed students with disabilities.

Information as a condition of autonomy enjoyment: Experience and evaluation of specific assistance services to students with disabilities

It is very important to get relevant information at the right time to solve many of the problems students with disabilities encounter during the processes of facing their own disability and entering the university.

In this process, the experiences of young people as being part of a group of people with disabilities to promote independent life were determinant.

"It was very important to enter the world of associations of patients with lupus and meet people who had initiative, because I was previously informed on the proceedings because maybe they have already been here for three years and have gone through may same situation and then they have guided me in some way" (Motor-Laura-27-W-Middle)

"They helped me a lot [referring to the Association he has took part in] when I was a child, in introducing myself into society, showing me new technologies (...) in order to get speech therapists (…) These associations help each other, you know? To achieve the goal, break the barrier of disability" (Hear-Crash-20-M-High)

In general, there is a remarkable lack of information when passing from secondary education or vocational training courses to the university. That creates fear to students or parents.

This lack of information about specific resources-services for students with disabilities in or out the university seems to be determined by the following factors:

1. The fact that the disability is originated between the end of secondary education and the beginning of the higher education, or during the latter.

2. If the contacts occurred during the transition from secondary to higher education and information was given on the existence of such resources facilitating then to be contacted each other.

   "At high school came a woman who was in charge of that as well and she informed us and then I talked to her and I was well informed and then did the paperwork. (This person was told about an aid to cover the cost of the car on the transfer to the university) It was thanks to that that I could do it. If not I do not know how would I know and do it "(Motor-Roser-20-W-Worker)

3. If the person with disability has not yet gone to the university assistance service, responsible for managing those issues, and this service does not provide the necessary channels so that the student could receive information about it at his/her first arrival at the university, independently if the students straightly addresses to this service.

4. Size of the university or college: in smaller colleges, the teaching and service staff aimed at students with disabilities usually know the students who are in their own facilities, so it is easier to get in touch with them on a regular and informal way, and thereby track their needs.

5. Absence or presence of specific services at the university that keeps track of the students' situation.

   "I have the impression that if you do not ask them they do not know. I think that even so, there might be in one of those folders, saved who knows where,

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the regulation to apply when attending people with disabilities, because, if you simply ask the secretary or the person attending you there, he/she has no idea" (Motor-Laura-27-W-Middle)

Most of the students from universities where there is a service for students with disabilities consider that service as very positively. Some cases show the importance of associations acting as mediators between the student and the disability support service or, in its absence, with the competent authority (usually the Vice Chancellor of Student).

"The first time it was them, because I spoke with The COCA and the COCA's people talked to them (university support service). But, how diligent are they. Not, because at the beginnings I had not personal assistance. They help for everything; the fact that there be a service that take care about you to know if you are well, if you need anything, you know where to address to" (Motor-Sara-28-W-High)

"I think I've been very lucky that this group of people came (support services for students with disabilities), the truth is that, at the time of registering, I did it on the condition of disabled, so I guess they received a report that they had a student with disabilities and then they contacted me at the very first moment and asked me what I needed, if I required an I don't know what, I did not have know what, I did not have to do anything else, I was lucky" (Hear-Albert-19-M-High)

Scholar, volunteers and support staff who provide care services for disabled people

These people are a key point for ensuring autonomy (within and outside the university context), especially for people with hearing disability and upper limb motor disability.

"As the teacher explains a lot and a lot of stuff, I had no time to copy and listen to everything, they gave a scholarship to a student in order to pass me the class notes(...) she took notes, a very good student, and she gave a copy to me" (Hear-Albert-19-M-High)

Some students with disabilities have met difficulties in cases where the university pays for the service, but it is the student who is to seek for a support person.

"That one who is part of the university volunteer program (...) asked me if we wanted to hire someone specific, a particular girl, or how would we want to do it. Me and my parents decided company dedicated is dedicated to this was the best(...) In my situation, changing of people and so on is very bad for my health, for my back, how to catch me (...) the hired girl was on leave due to illness and the other ones replaced her for two months but the problem was they did not seek anyone else (...) I was not assisted, I could not go to the bathroom when I needed, I had that, the schedule was not met, but

it was not the workers' fault, but the company (...) my health was getting worse and I was left here for four months (...)There were days I had to spend ten hours without going to the bathroom because there was nobody to help me" (Motor-Ana-24-W-Middle)

"The program asked me to look for support people and at the end the classmates were who help me and it did not work because classmates saw it in the sense of helping and they got tired, because they were always conditioned, the person must accompany you everywhere, Their attitude also conditions" (Motor-VAN-26-W-Middle)

Accessible hall of residence or flats

None of the students interviewed live in those accommodated apartments offered by some universities, but they considerations on the awareness about them is the following:

"You can find a flat but that it be accommodated to an important need is hard to find, so I cannot work and pay 900 Euros rent, besides all stuff related to living in a place that it is not yours and so" (Motor-Nube-23-W-Worker)

(Talking about the university she was thinking to access) "They offer an accommodated room and you can go from the hall of residence to the college; but you can't, so you can do nothing, because there was not an accessible transport, you cannot go for a walk with your friends, you cannot go to school either" (Motor-Ana-24-W-Middle)

Fee exemption

Some students were unaware of this benefit, which denotes the importance of the access to information on existing resources by people with disabilities.

"From that moment on (when the specific services reported him) I submitted my level of disability and did not have to pay anymore. Of course, they should have been concerned about promoting it if there are students with these conditions (...) I see it as an incentive, not just because I do not have to pay fees" (Motor-CV-27-M-High)

Non-significant curriculum accommodations

When the student, due to causes related to disability, has been forced to miss a period of classes, the adaptation has been generally handled informally: enrolling the subject again, keeping the mark in some situations, etc. most universities analyzed, the curricular non-significant accommodations are poorly standardized resource.

"I have scheduled an operation, for example (...) which is the level of tolerance for a person with disability with such an avoidable appointment?

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> *You have obstacles that are part of your intrinsic handicap, this is one of the not considered issues (...) and maybe you can go to class for a month (...) maybe it should be regulated (...) that teacher could be flexible and say that well, if he could not do the first partial exam he can do two partial exams. It cannot be just a matter that teacher keeps your marks" (Motor-CV-27-M-High)*

Technological resources: inclusion and autonomy

Technological resources of all kinds are widely used among students and represent a fundamental dimension that enhances their autonomy, not only in their daily lives but also in the educational activity. It is worth noting their use by students with hearing and visual impairments in polytechnic schools, which are more favorable in developing them.

> *"The second year was harder for me (...) because my hearing capacity was decreasing quite that year, second year I had to start using a FM station, I wonder if you know what it is, with the teacher, and that it is psychologically difficult to carry, enter the classroom and say please teacher take this (...) That's what there is, they are the accommodations and without them I could not live right now.*

> *We use as assistive technology the touch board, then it was a little bulky because you had to take board together with a projector, a laptop and be connected with the professor; the professor wrote on this board and everybody got the same, it was funny because you wrote there and of course, I saw it on my computer, in real time (...) we knew there was a touch board, but nobody had seen this functionality before (...) I then started thinking about it and have the idea (...) we were talking with the technicians, who taught the professors how to use it. In computing all these gadgets and board stuff, since professors are computing experts, they like it and it was appropriate for them, and did not objected.*

> *We have there a place where people with disabilities can be, we have computers people can connect to, Internet (...) we can go there to study and all that. But I, for example the library, when I have to consult books we order a twenty-power magnifying glass, which is quite a lot"(Visu/Hear-David-23-M-Worker)*

Among the different technologies, the use of computers and Internet access are key tools for accessing the information and performing various tasks. Several students also use support products and assistive technologies to access to these devices. Among them, different students with motor disabilities mention how voice recognition software allows them to quickly write, or talk about the use of alternative input devices such as trackball. The possibility of surfing the Internet with assistive devices such as the mentioned above, especially the voice recognition

program, and also those used by people with blindness, screen readers, require accessible web design, based on current standards. It is part of the e-accessibility, which was discussed in previous sections.

> *"Internet and what this implies, the overhead projector with the possibility of putting a light... eh, I cannot lift my arms, I cannot use a blackboard. If we go to what I pretend to be, what is a professor, visual support is very important to me, then that allows me to do my presentation, I cannot write on the board but I can put a power point that I can develop. As for disability, specific things I do not know if it is specific or not but the 'Dragon' is a program for Word that allows me to write fast enough" (Motor-Nube-23-W-Worker)*

> *"I am the most fortunate of the world since computer exists. Because I think it would have been impossible because after the accident happened to me and just started to develop fibrosis (...) that it be a TrackBall is essential (...).You move the ball, not the mouse" (Motor-Sara-28-W-High)*

Extra costs of disability: class implications

The problem that accommodations and technological resources present is that they are not affordable for all students, although there provided with financial assistance to get them.

A cliché that has appeared, especially among students from middle and lower classes, and among those who studied in schools with few specific services or resources, were the study extra costs when having a disability. This is a major factor to consider when discussing the lack of university students with disabilities, simply because of mobility, even for those who have no motor disability, which requires human support or certain infrastructure that implies high extra costs.

When necessary technological adaptations are not available at the study centers, they have to be provided by the student. Such adaptations are usually very expensive, so if the family does not have solvency or external support (scholarships, grants, etc.) these resources are unreachable.

The upper-class students comments there is an almost non-existent reference to the financial costs involving a disability and its specific needs are not perceived as a problem.

> *"oh well, I did not apply for the registration fee exemption, not for me because really, for me to pay 100 Euros or not, does not mean much for my family, you know, not that I want to stay here but it is real. So, here I am generating expenses, I am moved, so imagine*

> *"In your case, how did you get your hearing aid? My parents paid for them. Because luckily I have a family with no money problems, but of course there*

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are other families that cannot afford it and then they buy some that are worse and the guy does not hear as well as he could, then you have much more language problems" (Hear-Albert-19-M-High)

Comments from students classified as belonging to the middle class denote the importance of economic resources:

"If I was not willful, all technical and financial aid you receive will not help you at all. It has to be you, you have to be, the one that proposes to do it and to accept it (...) that technical and financial aids keep existing because there is nothing free and it is not easy to have a, a hearing aid costs EUR 5000 (...) and this means that every four years you have to pay 5000 Euros. Because hearing aids are so delicate that you have to renew them" (Hear-Crash-20-M-High)

"The economic status of my parents has also helped. I mean, I remember that in one year during high school I failed mathematics. The low level of ESO and we had a big gap in maths from a man who expressed himself very badly and then, at high school came a guy who was more demanding and you had to enroll to remedial classes and all that" (Motor-Dyox-23-M-Middle)

The importance of family economic resources and aids to students in their training and university success is evident in working class students:

"A very important part is exemption, because for you a brush, for example, combing you costs one euro, to me for example it costs me thirty, and the chair costs 3500 if you want the very basic one. The social security gives you one if you want, because they told me the first time that my disability is not the appropriate for needing a motor wheelchair; don't ask. You always depend on the aids, aids you don't know when are they going to arrive, and right now I cannot work (...) and for anything there is an aid for orthopedics, which are really expensive" (Motor-Nube-23-W-Worker)

"My father works a lot to try to get ahead (...) never gave up but always saw it impossible the idea of coming to the University, because of the reality, that is, the economic situation of my father who is a mason; we lived from hand to mouth, and there was no help, until I was 18 they did not give me anything, after the 18 just 400€ and a few more... tell me how with just 400 and a few more can you afford a personal support service of three employees, as I have here, three assistants, it may sum up to 3000 Euros a month, while my father does not earn a third part of it.

All these things of aids and so on you had to fight for, I don't know, this is included in a catalogue, I do not know if you know, you have such a disease, such a code and such aid you can have, and my case was not even included in it; and me that I still needed more than them and I had no rights." (Motor-Ana-24-W-Middle)

Employment and disability: expectations and experiences

Evidences gathered in this study show the interviewed students' conviction of being able to lead a working life at a full capacity and with all guarantees, although it would require them a greater effort than the average.

> *"I know that I have to do more than others to have the same thing, because I have always done it like that, and everywhere I had to study twice to do what others do, my effort was twofold, not to study double, but to make things twice to reach the same point, then I guess that in a job it will be the same, because even though they send me to work somewhere it will take me longer, I will do more ... so then, what they have always said to me is that, even though I have to try harder, because I am so obstinate, and so like that I am, I know I can ... " (Visu/Hear-David-23-M-Worker)*

> *"Yes, I have more desire to have a job because I previously saw everything as more difficult. Since I was with that girl and I hadn't done anything by myself then I saw everything more difficult, but now I see it more possible, I can do it. "(Motor-Roser-20-W-Worker)*

Those who think they are not able to work show their good attitude towards work and their willingness to move towards alternative forms of integration and autonomy.

> *"I have a total incapacity for work, well, it is not the absolute but ... because I was working as a shop assistant and now, also, because of having a total disability and seeing that my range of possibilities for earning some money have been restricted since I combine it with going back to study something or whatever... so the situation is complicated, so I decided, also when I was on the outbreak of arthritis,- when I quitted the university- go ahead with other projects and now I've gone back to study, but in part e-learning studies, that is, nothing that for example fills my time such whole 4 years degree course because I've noticed that everything is so unstable that I cannot guarantee continued attendance during 4 years and being at eight or at nine in the morning because I have better and worse days. Then, all I am doing, more or less, has been through the Internet. That is, e-learning studies because they are more flexible. On the counterpart, well, ... it is quite demanding and (...)but the fact of the community, of being more or less at home, not being bound to scheduled timetables because you have to combine it with doctors, rehab, really complicated." (Motor-Laura-27-W-Middle)*

In general, all students, whether they feel capable or not, claim their place in society with recognition and active participation, either through the labor market, or through training and alternative contribution. As shown by their statements, a job has implicit a series of meanings that reach the highest expression in people with disabilities: independence, autonomy and inclusion.

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"I hope to find a right job and that it is stable so to pay for an apartment or something." (Motor-Roser-20-W-Worker)

"I would like to have a job I like, money is not that important, having a job that you love and feel good, that fulfills you, and being a little more a little less, so you have that equivalent. But the reality is that I cannot have it, it's like I cannot decide with the same freedom as the rest; that is, for me the money is the most important, but not because I care about the money itself, is that if I cannot have a life like anyone else is because of money, I do not think money brings happiness, since not because of having money you will be happier but if you haven't a minimum amount of money which allows you to live, money can then bring you happiness and it can also quench it " (Motor-Ana-USC-24-W-Middle)

"One of my key priorities is my independence, one of my priorities, to have a more or less normal life within my limitations, that I can have a similar life to others, can't I? Be able to make a living like everyone else, to have a family, to work and that's it, feeling fulfilled, that is my priority. "(Motor-MGJ-24-W-Middle)

Job expectations are quite conditioned by the socio-demographic situation of the social and family network in which students with disabilities are. Students who come from working families observe a much more complicated labor scene.

*"**What do you think about the world of work**? Complicated, complicated. If it is because of attendance or by competitive exam, it is difficult. Competitive exams in Spain are the cure for everything, being a government employee, I get the job and I have my life settled, and in a private company, is what I said before, the visual impact I am projecting is not positive, is negative. Then, or I work in the ghetto, I mean, in disability related companies or associations and others, which they are supposed to have the situation already assumed and know that accommodation does not carry problems or you have to move a lot and a lot to get a nowadays called precarious jobs so you need months to get trusted. [...] Any job, in a private company is rather complicated. First they have to believe in you, because at a first glance I do not give the image of being very disabled. There are things I cannot do or I do them my own way; and where you use one move, I use forty. So that attracts the attention, problem, I could not see clearly the fact that they were going to take me in a company."(Motor-Nube-23-W-Worker)*

Meanwhile, students with more extensive social and family networks and social capital consider their chances of finding employment are not overly complicated.

"Now I'm a little more realistic: Before, I said ugh! I do not want to work in a bank, because my father always worked in the bank (...) is director of a branch office. So he always tells me, ah, then get into a bank, and I pass of a

bank I do not want to go to a bank! (...) And now I want to work in a bank, I am focusing my career to that field and I like, I like it very much. And not just that, but at the bank you get very well paid"(Motor-Dyox-23-M-Middle)

""When I finished high school, as I was not sure what I wanted to work in when I was grown up, I chose a degree that had many job opportunities, then industrial engineering is what I am studying and has more job opportunities, then since my father is also engineering, he introduces me in the sector [...] the fact that my father studied it, and seeing right now how things have gone with his life and then you realize that everything went very well. Then I said to me that this degree is very good because you see him and see the places he works in and that he is doing well, then it can go well for me." (Hear-Albert-19-M-High)

More than a half of the interviewed students have already had at least one job experience, which in most cases has been linked to the university field: career practices, collaboration scholarship, etc. In most cases this experience is evaluated positively. Among the considered elements what they highlight is the contribution of work experience to their own training, financial rewards and self-realization.

"The business practices, well, I'm in a company, the Polytechnic has a service for job practices and I signed in, talked with the supervisor of the company ... there really is true ... I guess like everyone else that in their first job, we go around like fools almost, very nervous ... what happens is that the first day, there and so ... because of course you want so much to do things right and everything, and they say, hey, calm, calm down, this is not to death n similar; you come here to work and enjoy and do things, not to suffer. But I'm pretty good in the company, because I have a tutor also in the faculty, another in the company, and between them both monitor me. I'm doing, I address one or the other if I have questions, and then for a start it is fine, so not to do the big first jump, to have the first experience is fine. ***And have you encountered any problems or something?*** *In the company not, in fact the computers there used all the programs I had, no problem at all, they have behaved pretty well with me. "(Visu/Hear-David-23-M-Worker)*

"At the moment, here at the University I had no problems, the jobs I've had has been a scholarship, nothing important (...) I have just had the opportunity here at the University. (...) At least I'm doing what is my specialty; I'm in social work practice "(Motor-Patricia-27-W-Middle)

On the other hand, there was also a negative and discouraging experience among respondents, which has developed a critical appraisal regarding to the reality of the employment of people with disabilities

"Job opportunities that you can have, because nowadays it is very fashionable the topic of integrating people with disabilities and so, but I

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know that this issue most of the times you become the photocopy boy; when you have a disability, and I have seen it because I did it, for example, that the administration I organized ... and I was lucky to get into a department instead of making photocopies, because they knew that I had been studying some years to be an architect, so I started drawing plans, but otherwise my work would have been ... well, making photocopies (...) And this is, unfortunate, if you don't have the university education they end up doing so. So being a university student helps you finding a job related to what you want to work in and not that one that forces your disability to work" (Motor-CV-27-M-High)

Recapitulation

This section has presented the experience and perceptions of a sample of university students with disabilities. The starting point was the identity of these people, which highlights the culture of effort before environmental adversity, and the willingness to do this educational activity. It is even perceived their strength and adaptative capacity, which is generated by the fact of their disabled condition together with their interaction with the environment over time. Family support has been decisive for their development and the successive stages of education. There was also considered the accessibility of pre-university education as well as factors that condition their university choice. These factors range from a more instrumental pole, aimed at achieving independence skills through finding a job to a more personal realization and participation in public life.

Among those students with moving limitations the most predominant question was related to the physical accessibility state of the university /faculty and the orientation and support services. On the other hand, those profiles with limited vision and hearing seem to revail observations related to teaching conditions. In any case, the university courses are conceived as a way to reach and strengthen participation as well as personal autonomy or self-sufficiency, a core value also considered when assessing the accessibility of the environment, which can become facilitators or barriers in their path.

The autonomy and equality opportunities influence the aspirations towards the university by the students interviewed, including their perception of accessibility. In broad terms, we see a recognition of the breakthrough in physical accessibility, despite the persistance of located obstacles. The transfer from home to the university, despite the progress in urban transport accessibility, still include flaws that imply an extra effort, time and cost for users with disability.

The better valued or needed specific services and resources are the guidance and information, the support of volunteers, sholars or staff support for several activities, registration exemption (unknown by some of them), accommodated hall of residence or flats and non-significant curricular adaptations, at this moment insufficient.

Besides, technological resources of various kinds, including computer and Internet access, accompanied by assistive technology in several cases, are devices that have opened up the possibility of studying and exploring their professional career future with autonomy, always that, accessibility requirements in this area are fulfilled.

Regarding labor inclusion, a process in part already initiated in the same educational context through practices, the outlook is favorable, considering the requirement of an added extra effort; through employment, independence and participation is expected to be achieved. For some students who for different reasons do not see much viability in getting a job, participation and personal realization is what drives them to study

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CONCLUSIONS ...

The conclusions contain considerations based on a set of results achieved as well as issues obtained from the survey to centres, fieldwork and questionnaires to students.

GENERAL CONCLUSIONS

Once obtained the results from the questionnaires, there are outlined two different conclusions that complement each other. From its planning, this exploratory study pretends to analyze the accessibility from both perspectives: the objective data registered by the university managers, and the perceptions of the students with disability. In order to carry out the analysis, from the Observatory, the conclusions from both perspectives are compared by looking for those relationships that shed light on the object of study. Therefore, it is needed to point out the following general conclusions:

1. The first conclusion reached is that, in broad terms, it is observed a direct relationship between the level of accessibility of a university and the degree of autonomy their students affirm to cope with. In other words, as a general rule, it is stated that a greater universal accessibility, a better implementation of the design for all and a correct disability action plan are essential factors that facilitate the independent life of these students in an efficient and real way. This statement is further confirmed by contrasting with the opposite situation, in which some students had to give up their studies or even not choosing to start one because of the little or no accessibility to them.

2. However, the previous conclusion needs to be qualified with another seemingly contradictory observation. In fact, there are detected universities that have objective shortcomings in their accessibility, but they are perceived as adequate by their students, who do not mention them and, moreover, affirm they autonomously manage themselves in an objectively inaccessible environment. Therefore, it is stated that, although the minimum standard for accessibility has been outlined throughout these years (first in theoretical contexts and later in regulatory precepts) as essential for giving these people with disability an acceptable level of autonomy, the students show satisfaction despite the barriers and in less favourable contexts. This can be due to several factors:

    2.1. The students do not know the standards. They are not adequately informed of their rights; that is why they do not see all the shortcomings in the university. Moreover, their opinions are based on very practical criteria of basic usability, yet even in very poor conditions of the university's facilities or services.

2.1.1. Social and family bounds and the inherent conviction of having to overexert in order to get the same goals as their mates act as a spring or corrector of the university shortcomings.

2.2. Having developed enough personal strategies and resources, during their whole life yet in objective poor accessible conditions according to the universal accessible paradigm.

2.3. Students compare their current situation with their past academic experiences, which have always been worst, not ideal or even legal to which aspire to regarding their rights.

3. The students clearly appreciate there has been a very positive evolution in terms of accessibility in this state in the last years, being aware that those improvements are really useful and are directly advantageous for them. This statement is important since it shows that the efforts carried out are really positive and that policies implemented seem to move in the right direction, despite all the found shortcomings and that these policies are not yet reflected and perceived by a number of university students with disability. In this regard, it must be considered that no public university has fully implemented its universal accessibility plan. Therefore, today there is not a Spanish public university that is completely accessible. More time and effort are needed so that universal accessibility be a reality, an essential prerequisite so that the university area be attractive for students with disability.

4. The study shows that the students interviewed have given up the idea of studying certain degrees or going on with the chosen degree in certain universities because of the poor or no accessibility in them. Such result leads to the conclusion that the level of accessibility in the university environment is directly related to the possibility of being successful in the studies. In fact, the type of disability and the overall conditions of accessibility in the university directly influence on the expectations and election of a university and a degree. This reality helps to state the paradigm under which a great universal accessibility, better implementation of the design for all criteria, together with action plans that provide solutions to all the students' needs, as well as the personal experience in the educational and social relationship field and the teachers, family and students' believes on the level of functionality are significant factors that convey the autonomy and independency of students in the university framework. These facilitate the access to university studies and the experience lived in them.

5. Despite the need of fulfilling comprehensive analysis in relation to different disabilities, the accessibility circumstances vary in each case. Therefore:

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5.1. At present, the universities have focused most of their efforts in the physical accessibility, based on problem solution of people with reduced mobility. The accessibility solutions for people with other type of disability are sensitively minor.

5.2. The needed accommodations for people with visual disabilities are made by the ONCE. This is carried out by specialised technicians, which help by optimizing the assistance to these students. However, it is the university the one in charge of the needed non-significant curricular accommodations.

5.3. Currently, there are still serious deficits in accommodated materials for people with hearing disability from the studied universities.

5.4. Regarding mental illness, the stigma that still marks our society makes it difficult to contact any person with this disability, despite all the efforts to obtain data from them since, because of their characteristics, they are considered very relevant for a qualitative analysis. Moreover, the universities do not mention any possible accommodation, not even curricular accommodation these people may need.

5.5. Lastly, it is also important to point out that mental disability is not mentioned. It is true that, although there are cases of mental disability that are heard of having successfully studied a university degree, this number is still small. Being the case of a qualitative study of exploratory basis in the sample design, it did not seem appropriate to break down the real proportion of different types of disability in the Spanish University.

6. In reference to the development of accessible policies, the economic feature was not considered an essential variable although important. Conversely to previous thoughts, there is an underlying idea of the importance of the university government's awareness, since the promotion of measure on this field depends mainly on attitudes.

7. It is detected that awareness is fundamental for the development of active support policies for students with disability at the University. Students explain negative experiences due to that lack of awareness.

8. After the survey to centres and the fieldwork, it is seen how the policies being developed for the assistance of students with disabilities are dispersed, with a minimum consensus or a transversal action line between universities. This causes heterogeneity difficult to occur also in other areas of our society.

Although this situation does not influences students directly, since each of them faces just his/her own university reality, in these organizational shortcomings there can be found reasons that justify the attitude of those interviewed students used to solve their difficulties on their environment through non-formal mechanisms.

9. Regarding the composition and role of the support services, this should be made up of a multidisciplinary team, from the psycho-pedagogical scope. This way it could provide a global view of all the university environment of a student, as well as strategies and resources needed by each student. These services should be coordinated together with the university community and other bodies external to the university framework.

10. It is observed from the interviews to students that a shortcoming in the psycho -pedagogical orientation in compulsory secondary education, post-compulsory education, superior professional training cycles and university creates uncertainty about the resources, specific services and opportunities in general. This could explain the low enrolment rate of students with disability at the university.

ACCESSIBILTIY IN THE UNIVERSITY: SURVEY TO CENTERS AND FIELDWORK

After the analysis of the results from the general questionnaire and the fieldwork, the following conclusions were drawn from the scope of accessibility in the university context:

1. Although the number of interviewed universities that have an **Accessibility Plan** written are more than a half, 11 out of 18 interviewed centres, this number is still very low considering the importance of such plans for the accessibility and integration of students with disability.

2. There is not a homogeneous model of the **Student Disability Service,** not in its dependency or organizational location (nevertheless the most matching) or its members regarding their labour profile with the university.

3. It is remarkable the absence of a person **responsible for the Design for All:** 12 out of the 18 analysed universities has not created or filled that position despite being nominated in 2005 and within the University and Disability Seminar organized by the CRUE-CERMI.

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4. Among the university without Accessibility Plan, there is not either a consolidated general and practical trend towards the realization of **audits on accessibility**.

5. **Just one of the universities** included in the study **has accredited** a **quality certificate** or compliance with the **DALCO requirements** from the standard UNE 170001-1 of Global Accessibility.

6. The **classical physical accessibility** related to mobility problems, is perceived and associated to accessibility as the dominant form.

7. The level of accessibility is not homogeneous. There are differences between campuses and also inside the same campus, between its buildings.

8. Generally, there are options for accessible transport to get to the university.

9. Within the Physical accessibility, **transport** related aspects such as **parkin**g and **buildings accessibility** are the best considered.

10. Ramps, lifts and accommodated toilets are generally rated as satisfactory.

11. On the contrary, **podo-tactile elements** are, with no doubt, the less considered aspect in terms of path accessibility

12. **Non-slipping paving**, lack of **handrails** on both sides, lack of **non-slipping strips** and **contrast** between steps are the most deficient elements in vertical communication (stairs)

13. General **signalling from buildings** is considered acceptable, conversely to the signage from the inner spaces of buildings (offices, areas…)

14. **Acoustic signalling** is based on speakers and alarms set in some buildings and used for emergency and evacuation warnings. Inside some lifts there are also acoustic signalling

15. Buildings that are limited because of being considered as **Protected Heritage** are one of the more generalized obstacles for the physical accessibility in the university context.

16. Second and third generation in accessibility (info accessibility, non significant curricula accommodations, methodological procedures, processes and services…) are still clearly underdeveloped.

17. More than half of the universities surveyed state not to have proven web accessibility through an instrument such as the Web Accessibility Test (TAW). Furthermore, accessibility is often tested or proven, reportedly, be restricted to one part of the contents and services offered by the university.

18. In relation to info-accessibility, it is worth noting the positive advancement in the development of the provisions from the library's services.

19. **Accessibility to class notes** is a feature with more difficulties in the area of teaching.

20. **Laptops** are the most widely used technical resource in relation to the classroom resources.

21. Shortcomings lay on the computerized stenotype, the tablet PC or the video camera connected to a PC.

22. There is a lack of homogeneity or regulation of accommodated **material provisions** that must provide the university to the student. Each university has its own criteria, thus breaking the principle of equal opportunities.

23. Regarding **visual disability,** there is homogeneity in the accommodation of materials provided to students. This is also due to the fact that ONCE is who takes responsibility for the provision and thus has it regulated.

24. There is no homogeneity of universities regarding the **body, unit or service** of who is responsible for **keeping an appropriate state and availability** of the accommodated resources and support products.

25. The **professional orientation, labour insertion and employability service** is the most widespread of the services or specific programs for supporting students with disability.

26. There is a wide disparity in the universities in terms of accessibility in the complementary activities or of university extension (leisure, sport and culture).

27. Most universities affirm to be satisfied with the current **channels for divulging and disseminating accessibility measures**, services and programs.

28. There are considered as basically satisfactory and enough the channels, both specific and ordinary, so to identify the **needs of students with disabilities**.

29. The **training on accessibility** for professors and administration and service staff are shaped on a variety of offers and activities such as courses, workshops, materials… However, it lacks systematization.

30. The inclusion of **Design for All** contents in the curricula is one of the most deficient features.

31. Among the positive **accessible policies and actions, free registration** is the only measure applied by all the universities interviewed, also rated as favourable. On the other hand, there is the complaint that, in most cases, its cost has to be paid by the university.

32. For the specific funding for accessibility, in most cases it stands out the IMSERSO-ONCE Foundation agreement, a source of aid and subvention.

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THE PERSPECTIVE OF THE UNIVERSITY STUDENT WITH DISABILITY

1. The '**culture of effort'** stands out as a guideline in the identities of the interviewed students, both pre-university and university stage. It is even perceived the strength and capacity for adapting, a difference created by their disability through the interaction with the environment over time.

2. The poor accessibility, lack of specific educational resources and poor training of teachers in addressing students with disabilities have contributed to interfere one way or another, the education of young people in schools and colleges. Despite the obstacles, the vast majority of respondents made a positive **assessment of pre-university stage** as the social integration be achieved made them able to continue their education at university level.

3. The 'itineraries of effort' help explain the lack of student population with disabilities. The culture of overexertion is the engine that exceeds the existing barriers. However, the **persistence of these barriers** (and the extra effort needed to overcome them) evidence situations and contexts in which it is likely that failure or dropout occur.

4. For students with disabilities, the **university education stage represents the realization as an autonomous being and a path for social integration** from the equal opportunities. Besides, for some of them, at least, also means the preparation for accessing to the labour market and, then, an economic independency.

5. The lack of information in the transition form pre-university to university teachings limits the probability for achieving success in the university education. The uncertainty caused by the **lack of information on specific resources and services**, both students with disabilities and their parents, influence the decision to continue the educational path in higher education.

6. The **factors in the choice of a university/faculty,** ranging from a more instrumental pole, aimed at the qualification to become self-reliant through finding a job, and one more focused on personal achievement and participation in public life. Among those students with motor limitations has dominated the question on the conditions of physical accessibility of the university/faculty and the counselling and support services, while the profiles of visual and auditory attention seems to prevail to conditions relating to teaching .

7. The support of social and family networks enables the achievement of the university education by students with disabilities, and helps creating a positive

experience in the university environment. Family support provides greater autonomy to students with disabilities (housing, reinforcement training, general and specific technological resources) that favour a process of empowerment by young people, necessary for developing as university students.

8. Peer groups (classmates and friends outside the university) contribute to reinforce the perception of your abilities, give emotional stability, and provide support to overcome the physical and symbolic barriers. A university environment where students can have relationships not only mediated by the associated disability contributes to a satisfactory perception of the learning experience.

9. Some university's trajectory there was found that, in the absence of protocols for action, the existence of a mediator figure between the student with disabilities and the specific resources and services is very important to meet the minimum conditions so these students can be put at the same level as the rest of the student community.

10. **Accessibility conditions in private and public spaces and in technologies** enable disabled students to study a university degree. While many people recognize the great improvements in physical architectural accessibility of urban areas, they do not perceive that public transport services (trains, buses ...) had also improved. In their speeches it is evident the enormous difficulties they meet and the many daily challenges they have to get through in order to get to the faculty and, despite this, they go ahead with their training.

11. **Physical accessibility** is a key element to ensure equal opportunities for students with disabilities and promotes the integration of students with disability in the social imaginary of the university community, because it increases the chances for building interpersonal.

12. The specific services and resources better graded or required include **guidance and information**; **support** from volunteers, interns or support staff to various activities; **exemption from registration fee** (unknown by some of them); **accessible residence or accommodated floors**; and the **non-significant curricular accommodation**, nowadays insufficient.

13. **Technological resources** are particularly relevant in the education of students with disabilities. Computer and Internet access, support products diversified according to their needs and preferences, and on the other side, content and accessible spaces for consulting and getting information provide the very possibility for conducting the studies and the professional projection under conditions of autonomy.

14. The provision of **personal assistance,** especially necessary for students with severe motor disabilities, is conditioned by the purchasing power. That is why provision grants and scholarships are very important for working-class students, as well as the fact of facilitating the access to these provisions.

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15. In general, all these students, both, people able to work and those who are not, claim their place in society, with recognition and an **active participation in the labour world** or through learning and alternative contribution. As their statements show, employment, a final product from the university education, covers a series of highly significant attributes for people with disability: independency, autonomy and inclusion.

16. Most students with disability feel able to suitably perform a job and satisfy their desire for autonomy and independence in this context. The **social capital**, understood as a woven network, influence the future expectations in relation to the job. Students from low class families foresee a much more complicated job outlook.

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RESEARCH AND INTERVENTION LINES ...

The results obtained in this first study point out to a list of possible research lines that favour the creation of knowledge to orient with a criterion the intervention plans and the specific action strategies. It also identifies course of action that can favour the universal accessibility and the inclusion of the student with disability.

Regarding the possible research lines, it should be noted:

1. Study of the needs students with disability may have in the different educational stages and the experience of the school centres on diversity. It is required to know the need of the different groups of people with disability in each of the educational stages and, then, research on different contexts what are the conditions that favour the continuity in the studies as well as other factors that determine school failure. The study has to include factors that are an influence in the university trajectory success as well as identifying conditions that assure equal opportunities.

2. Study of picture that university professors have about students with disability.

3. Study of the picture and expectations the University has about students with disability.

4. Analysis of the 'decision making' process of students with disabilities regarding their incorporation to higher studies.

5. Identification of the educational needs of students with disability in the different training stages.

6. Identification of the use and needs of the implementation of Information and Communication Technologies (ICT) by students with disability as well as their accessibility in the university field.

7. Definition of the accessible learning methodologies and the consideration of the human diversity in the university field.

8. Analysis of the accessibility of different spaces considering the furniture accommodation and organization: ergonomic furniture, reservation of seats for people with disability, stairs and platforms removal in classrooms.

9. Classroom conditioning, observing the accommodation of classroom materials (theoretical, practical and from laboratories), adequate lighting in all situations, space for wheelchairs, acoustic quality and space in classrooms. Besides, specific accommodations for people with sensory disability and in accommodated computers.

10. Accessible information and communication. Studying the presence of some specific features such as: lightning levels, type of natural and artificial lighting, colour code, level and type of contrasts, typographies, characters' style and size, and existence and usefulness of specific support products. In this sense it is also necessary to know:

11. The implementation of visual signalling, equipped with tactile Braille and tactile signage in high relief, and acoustic emission of the most relevant information.

12. The presence of magnetic loops and frequency modulation equipment in secretariats, professor's tutorial departments, plenary halls, laboratories or specific classrooms, cafeteria…

13. For accessing the buildings, there should be taken into account the existence of video intercoms and doors allowing interior and exterior partial view. In the inside, there will be considered emergency signal lights, text panels to notice situations or elevator cabs with interior-exterior partial view.

14. Protection of people with disability in front of an emergency situation: analyze the accessibility of the emergency signage to make it accessible for people with sensory disability; and knowing the safety assurance for people with reduced mobility in all university buildings.

15. Guaranteeing the necessary measures in each case for the development and participation in complementary activities such as training, practices, leisure, etc. set in spaces from inside and outside the university campus.

16. Studies on each of the different types of disabilities, also clearly defining the needs of each of them.

As possible intervention areas:

1. **Creation of training plans for the entire university community.** The present study indicates the relevance for promoting training and attitudinal changes towards human diversity, specifically those derived from a disabling condition. It is necessary that the lines of intervention are specific to each area of the university community (faculty, administrative staff and services and all students in general).

2. **Improving care services for students with disabilities.** It is observed the lack of guidance in terms of institutional ways of proceeding when dealing with students with disabilities. Standardization of protocols is required to have the role of practice guidelines in order to ensure access to quality formal education on equal terms.

3. **Convenience of creating a mediating figure.** It also highlights the need for the existence of a figure that mediates and coordinates between the student with disability and the rest of the university community for both, solve educational and learning situations as well as academic situations. This figure should have a psycho-pedagogic profile with a global vision of the student's academic career.

4. **Tutor figure for students with disabilities.** It is observed the need that the mediator figure present in services addressed to students with disability has an

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academic profile so that it be possible his/her mediating function between the students with disability and the professor. It would be desirable that each student was under the responsibility of a tutor who is to follow up their academic development and help resolving potential difficulties along their educational path.

5. **Establishment of services, networks and effective channels of information for students with disabilities and their families.** Given the observed disinformation situation, it is necessary to create channels and networks for students with disabilities and their families. Appropriate information on specific resources and services is very important in critical moments from the trajectory of the students with disabilities (such as choices about the career and study centres). There exist initiatives along these lines, but have not been consolidated. There should be needed to identify the factors that need improvement in order to ensure its functioning.

6. **Standardisation of business practices based on disability: the creation of protocols.** Despite the existence of general rules related to the no exclusion of people with different needs, it is observed a lack of guidance on the institutional forms for proceeding with a student with disability. It is required the development of protocols or practice guidelines that ensure access to formal education and quality on equal conditions for students with disabilities.

7. **Monitoring measures and promotion of the Info-accessibility at the university.** Applicable to the different initiatives, it is necessary to provide diagnosis about the accessibility of ICT resources used by universities, beginning with the accessibility of web portals and e-learning platforms. Ensuring accessibility in this field from knowledge-based society also requires the implementation of training activities aimed at both website developers and content managers. Beyond the web space, different contents in electronic format such as documentary resources and procedures, programs and applications as well as information kiosks, all of them in the ongoing process of technological innovation, must be adapted to the Design for All guidelines.

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https://wcd.coe.int/ViewDoc.jsp?Ref=ResAP(2001)1&Language=lanEnglish&Site=CM&BackColorInternet=9999CC&BackColorIntranet=FFBB55&BackColorLogged=FFAC75

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https://wcd.coe.int/ViewDoc.jsp?Ref=ResAP(2001)3&Language=lanEnglish&Site=CM&BackColorInternet=9999CC&BackColorIntranet=FFBB55&BackColorLogged=FFAC75

Resolución ResAP(2007)3: Alcanzar la plena participación a través del Diseño Universal. 12 de diciembre de 2007. Consejo de Europa.

https://wcd.coe.int/ViewDoc.jsp?id=1226267&Site=CM&BackColorInternet=9999CC&BackColorIntranet=FFBB55&BackColorLogged=FFAC75

Real Decreto 1544/2007, de 23 de noviembre, por el que se regulan las condiciones básicas de accesibilidad y no discriminación para el acceso y utilización de los modos de transporte para personas con discapacidad. Boletín Oficial del Estado, 4 de diciembre de 2007, núm. 290 pp.49948 - 49975

http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-2007-20785

Real Decreto 1494/2007, de 12 de noviembre, por el que se aprueba el Reglamento sobre las condiciones básicas para el acceso de las personas con discapacidad a las tecnologías, productos y servicios relacionados con la sociedad de la información y medios de comunicación social. Boletín Oficial del Estado, de, núm. pp.

http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-2007-19968

Real Decreto 505/2007, de 20 de abril, por el que se aprueban las condiciones básicas de accesibilidad y no discriminación de las personas con discapacidad para el acceso y la utilización de los espacios públicos urbanizados y edificaciones. Boletín Oficial del Estado, 21 de noviembre de 2007, núm. 279 pp. 47567 - 47572

http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-2007-9607

Real Decreto 366/2007, de 16 de marzo, por el que se establecen las condiciones de accesibilidad y no discriminación de las personas con discapacidad en sus relaciones con la Administración General del Estado. Boletín Oficial del Estado, 24 de marzo de 2007, núm. 72 pp. 12852 - 12856

http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-2007-6239

Real Decreto 556/1989, de 19 de mayo, por el que se arbitran medidas mínimas sobre accesibilidad en los edificios. Boletín Oficial del Estado, 23 de mayo de 1989, núm. 122 pp. 15352 - 15353

http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-1989-11632

Real Decreto 1393/2007, de 29 de octubre, por el que se establece la ordenación de las enseñanzas universitarias oficiales. Boletín Oficial del Estado, 30 de octubre de 2007, núm. 260 pp. 44037 - 44048

http://www.boe.es/aeboe/consultas/bases_datos/doc.php?id=BOE-A-2007-18770

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ANNEX ...

ANNEX 1: REGULATORY REFERENCES

Introduction

This first annex offers a collection of the legislation that has a bear on the field of accessibility as well as the university education.

It deals about legal references of different scope and obligatory nature, considering both, the international and the Spanish current legislation including the state, regional and municipal ones.

International references, such as the *United Nations Convention about the Rights of People with Disability,* draw an ethical and fundamental landscape for the state law developers. This declaration has been subscribed by the Spanish government. The European guidelines from different bodies have projection over the member countries' legislation in different moments. Finally, the Royal Decrees that have a bearing on specific areas (i.e. the access to official university teachings and the admission procedures of the Spanish public universities) and present the Application Regulations in monographic areas of general laws such as the LIONDAU.

International stage

Regarding the international legislation, it has been carried out an exploration of the *Convention about the Rights of People with Disability,* in particular to its articles focused on accessibility and education and pointing to the measures that the States have to take in this regard Spain ratified the Convention and, hence, it is forced to comply it at this present time.

The Convention about the Rights of People with Disability was approved by the UNO General Assembly on December 13th 2006 and it was ratified by its State members on March 30th 2007.

The Convention came into force in Spain on May 3rd 2008 according to the established in the Article 45 (1) of the same. (BOE num. 96 20648-20659) The Convention gathers the accessibility as one of the main principles in the 'f' section of the article 3. On the other side, article 9 is entirely dedicated to the general accessibility; that is why it is gathered below.

"Article 9. Accessibility"

In order that people with disabilities can have an independent live and also be able to fully participate in all aspects of life. The States Party will adopt the adequate measures to assure the access of people with disability on equal conditions in a physical environment, transport, information and communications, including the information and communication systems and technologies, and other services and facilities open to the public or of public use, both in rural and urban areas.

These measures will include the identification and removal of obstacles and access barriers, and they will be applied to:

- Buildings, public paths, transport and other exterior and interior facilities such a schools, housing, medical and job facilities.
- Information, communication and other type of services, including the electronic and emergency services.

The States Party will also provide measures for:

- Developing, announce and supervise the application of the minimum norms and guidelines about accessibility in facilities and services that are of public use.
- Assuring that private entities that provide facilities and services for public use have into account all the accessibility characteristics for people with disability.

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- Offering information to all people with disability involved in having accessibility problems.
- Providing Braille signage and other easy to read and understand formats to buildings and facilities of public use.
- Providing different human and animal assistance and intermediates, including guides, readers and professional interpreters of sign language, in order to facilitate the access to buildings and other facilities of public use.
- Promoting other appropriate ways for giving assistance and support to people with disability in order to assure its access to information.
- Promoting the access of people with disability in new information systems and technologies, including Internet.
- Promoting the design, development, production and distribution of accessible information and communication systems and technologies in an early stage so these systems and technologies are accessible with at the least cost.

Finally, regarding Education, the Article 24 of the Convention states that:

> *"The State Party acknowledge the right of people with disability to education. With the aim of doing effective this right without discrimination and on equal opportunities basis, the State Party will assure an inclusive educational system to all levels as well as a life long learning education."*

European stage

The principles included in the reviewed version of the **European Social Letter** it is established the right of people with disability to independence, social integration and participation in community life, through measures that have the aim of overcoming communication and mobility barriers to allow access to transport, housing and cultural and leisure activities (Art. 15, paragraph 3).

The regulations from the European counsel that must be considered to guarantee the social integration and participation in the university education through the **universal design** are:

- ResAP resolution (2001) 1 from the Committee of Ministers about the "introduction of principles from the Universal Design of the curricula of all professions related to the construction environment".
- ResAP resolution (2001) 3 from the Committee of Ministers "Towards the full citizenship of people with disability thanks to the new integrative technologies"

- ResAP resolution (2007) 3:" reach the full participation through Universal Design" (Adopted by the Committee of Ministers on December 12th 2007 in the 1014 meeting of ministerial delegates).

This last resolution, ResAP (2007) 3:

"Recommends that the state member governments from the Partial Agreement in the Social Area and Public health, with the due consideration to their national, regional or local specific structures and their correspondent responsibilities:

- Promote full participation in community life and, in particular, avoid the creation of new barriers by designing from the beginning solutions that are accessible and usable by all, including the Universal Design principles in their police, legislation and practice.
- Take as a guide the recommended measures from the beginning of this resolution into the process of inclusion of Universal Design principles in politics, legislation and practice.
- Promote the application of the Universal Design in the implementation of the Recommendation Rec (2006) 5, from the Committee of Ministers of States members, about the Europeans Counsel's Action Plan for the promotion of the rights and the full participation of people with disability in the society: improving life quality of people with disability in Europe 2006- 2015.
- Assure the widest dissemination possible between the agents involve, for example through campaigns of awareness and cooperation with the private sector and civil society, involving, in particular, the non-governmental organization of people with disability."

State stage

The legislation about accessibility presented in this section is that one that applies to all the whole Spanish state. The general norm that establishes the measures for facilitating the accessibility to people with disability in Spain is the *Law of Equal Opportunities, No Discrimination and Universal Accessibility of People with Disability* (LIONDAU).

Next, it is exposed the most relevant contents of the LIONDAU and they are listed in the Royal Decrees of development:

"Article 10. Basic conditions of accessibility and no discrimination.

1. The government, without prejudice of the powers conferred to the autonomous communities and the local corporations, will regulate some basic conditions on accessibility and no discrimination that guarantee the

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same levels of equal opportunities to all the citizens that have a disability. Such regulation will be gradual on time, scope and content in relation to the obligations to be imposed, and will encompass all fields and areas that chapter 1 contains.

2. The basic conditions for accessibility and no discrimination will establish specific measures to prevent or suppress discriminations and compensate disadvantages or difficulties to each field or area. There will be included disposition about the following aspects, at least:

    a. Accessibility requirements of buildings and environments, tools, equipment and technologies, goods and products used in the sector. In particular, the removal of barriers from facilities and the accommodation of equipments and instruments.

    b. More favourable Conditions in the access, participation and use of resources from each field or area and no discrimination conditions in norms, criteria and practices.

    c. Complementary support such as economic aids, support technologies, services or special treatments and other personal services. In particular, helps and auxiliary services for the communication, like augmentative and alternative communication, support to oral communication and sign language or other devices that allow communication.

    d. Adoption of internal regulations in companies and centres that promote and stimulate the elimination of disadvantages or general situation of discrimination of people with disability.

    e. Plans and calendar for the implementation of the accessibility requirements and the establishment of more favourable and no discriminating conditions.

    f. Means and human and material resources for the promotion of accessibility and no discrimination in the correspondent field.

3. The basic conditions for accessibility and no discrimination will be established taking into account the different types and degrees of disability that will guide the initial design and the reasonable adjustments of environments, products and services from any application field of the law.

    a. Fourth final provision. National Plan of Accessibility. In a term of six months, in compliance with the provided in article 16 of this law, the government will pass a national plan of accessibility 2004-2012. The plan will be developed in three phases of three-year action each. In its design, execution and monitoring there will take part the

most representative public associations from the state area related to people with disability.

b. Eleventh final provision. Infringement and penalty system. The government, in a two years term after this law comes into effect, will present to the Courts a law project that will establish an infringement and penalty system regarding the equal opportunities and no discrimination of people with disability.

Royal Decrees that regulate the accessibility conditions:

- Royal Decree 1544/2007, November 23rd, which regulates the basic conditions of accessibility and no discrimination **for the access and use of transport means by people with disability.**
- Royal Decree 1494/2007, November 12th, by which it is approved the regulations about the basic condition for the access of people with disability to **technologies, products and services related to the information society and social communication means.**
- Royal Decree 505/2007, April 2nd, by which it is approved the basic conditions of accessibility and no discrimination of people with disability for **the access and use of public urban areas and buildings.**
- Royal Decree 366/2007, March 16th, by which it is established the accessibility and no discrimination conditions of people with disability in **their relationships with the General State administration.**

As regards to **Web accessibility**, this is a requirement all portals from Public administrations, the ones with public financing, the organizations that give public services as well as "companies with significant economic impact" must meet from December 31st 2008, at least at a medium level of the accessibility criteria to the general content. As it is provided by the Law 57/2007, December 28th, on *the Promotion measures of the Information Society.*

The Royal Decree 1494/2007, November 12th, by which it is approved the Regulations on basic conditions for the Access of People with Disability to Technologies, Products and Services Related to the Information Society and Social Communication media, taking as a fundamental the LIONDAU's statements and updating what is established by the Law 34/2002, July 11th, of Services of the Information Society and e-commerce (LSSICE), regulates essential aspects related to the access of people with disability to digital and electronic media. Because of its importance, all the regulatory text is essential, but as a relevant aspect, it is established as a technical regulatory reference the UNE 139803:2004, priority 2.

The *Law 49/2007, December 26th, which establishes the infringement and penalty system regarding the equal opportunities,* no discrimination and universal accessibility of people with disability, it is other of the basic norms for the development of the

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LIONDAU. In it, it is typified the infringements on equal opportunities, no discrimination and universal accessibility and the penalties (in case of a fine it can range from 301 million Euros) and their seriousness levels.

Article 16 establishes as a serious penalty the "failure of people obliged to meet the norms of accessibility in environments, instruments, equipment, technology, transport means, communication means and of products and services available to the public that limits or forbids their access or regular use by people with disability". This can lead to penalize the institution of person responsible of fines up to 90,000€. The recurrence of the infringement, can incur to a very serious offence, punishable by up to one million Euros.

The computer products that are not in the Internet formats but are also used by different employees and even clients, with different abilities, have to be lied to technical regulations always that legal regulations are missing. In this case, the reference technical regulations will be the UNE 139801:2003 for Hardware requirement and UNE 139802:2003 for software requirements). The latter is considered as special since it implies a regulation between the user and the computer.

Regarding the legislation that is more specifically and directly related to the university area, it can be cited the *Organic Law 6/2001, December 21st, of Universities* which considers in its Art. 46.1b as rights for students:

> *"The equal opportunities and no discrimination for reasons of personal or social circumstances, including disability, in the access to the university, registration into centres, permanence in the University and exercise of their academic rights."*

For that reason, in the exposition of reasons, it is gathered the need of the promotion of active policies to guarantee the equal opportunities of people with disabilities.

Among those active policies there are the scholarships and grants considered in the Art. 45.4, which contains the reference related to free enrolment fee.

It is also prescribed in the twenty-fourth Additional Provision the need of specific programs so that people with disability could receive personalized help and needed accommodations in the teaching regime, favouring that students with special needs related to disability have the required means, supports and resources for a real equal opportunity.

It is placed in the eighth Additional Provision that after a year that the Law is in force the universities must write the appropriate Plans to meet the AP 24.

From the analysis of the different university plans there are drawn common action lines regarding:

- Accommodation of entry exams.
- Free university taxes.

- Reservation of 3% of seats.
- Removal of barriers.
- The specific supports widely stipulated are:
  - Personal, academic and professional orientation.
  - Curricular, methodological or content accommodations.
  - Technological accommodations or alternative communication systems
  - Accommodated Transport.
  - Economic aids.

In this line, the *Organic Law 4/2007, April 12th, which modifies the Organic Law 6/2001, December 21st, of universities* has implied a very important advance on the recognition of the rights of students with disabilities at the university.

The fourth Additional Provision of this Law of Universities points out that there should be created specific programs for helping the university student with disability:

> *"The competent public administrations, in coordination to the respective universities, will establish specific programs so that the victims of terrorism and gender violence, as well as people with disability, could receive individual help, support and accommodations of the teaching regime".*

This Law dedicates the twenty-fourth Additional Provision for the inclusion of people with disability in the universities. In that, it broadly points out:

1. *"Universities will guarantee the equal opportunities of students and members with disabilities from the university community, outlawing any way of discrimination and establishing positive actions for assuring the full and effective participation in the university area."*

2. *"The students and other members with disability from the university community will not be discriminated because of their disability, nor directly or indirectly, in their access, register, permanence and practice of their academic degrees or other recognized activities."*

3. *"The universities will promote actions to favour that all members from the university community that have any special need related to their disability have means, support and resources to assure real and effective equal opportunities in relation to other components of the university community."*

4. *"University buildings, facilities and dependencies, including also virtual spaces as well as services, procedures and provision of information, have to be accessible to all people so that they do not impede any member with disability*

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from the university community to exercise their right to entry, move, stay, communicate and get information or other similar in real and effective conditions."

5. *"All the study plans proposed by the universities must have into account that the training in any professional activity must be done from the respect and promotion of the Human Rights and the principles of universal accessibility and design for all."*

6. *"With regard to what is established in the Article 30 from the Law 13/1982, April 7th, on the Social Integration of the impaired and its development norms, the students with disability, being considered as those described in the Article 1.2 of the Law 51/2004, December 2nd, of equal opportunities, non discrimination and universal accessibility of people with disability, shall have the right of total exemption of taxes and public fees in the studies leading to the award of a university degree."*

In Article 45.4 it is stated the economic aids that should be available for the student with disability. In specific:

"With the aim that nobody be excluded from the university study because of economic reasons, the government and the Autonomous communities, as well as the universities, will implement scholarship, grants and loans for the student and in the case of public universities, there will be established partial or total payment exemption of public fees for academic services. In all cases, especial attention will be given to people with family burdens, victims of gender violence and people with dependence and disability, assuring this way the access and permanence in university studies."

By last, this Law in Article 46, section 2, paragraph b), which refers to the students' rights, points out?

"b) equal opportunities and no discrimination because of sex, race, religion or disability or any other personal or social condition or circumstance in the access to university, enrolment in centres, permanence in the university and exercise of their academic rights."

The last normative action that affects the universities has been the Royal Decree by which it is regulated the conditions for the access to the university, its official degree teachings and the admission procedures to the Spanish public universities, which raises the percentage of seats reservations for students with disability from the current 3% to the 5% in order to be on the level of the current reservation present in public employment.

Action instruments that the legislator will use to effectively specify the objectives pursued are: the *National Plan of Accessibility 2004-2012* and the *II Action Plan for People with Disability 2003-2017.*

Both Plans are supported by a previous task of analysis, study and participation of the affected and involved sectors, documented in the *Libro Verde: la Accesibilidad en España* (IMSERSO 2002), *the Libro Blanco de la Accesibilidad en España* (Equipo ACCEPLAN, 2003) and the publication of the CEAPAT *Catálogo de ayudas Técnicas-Catalogue of technical support.*

In any case, the regulation with a law status that directly applies in the field of this study, Universities, is included in the *Organic Law 6/2001, December 21st, of Universities.* Next to it, there is the *Organic Law 4/2007, April 12th,* which modifies the *Organic Law 6/2011, December 21st, of Universities*. Both are included under the title "University framework".

Autonomic stage

For the development of their competences, the Autonomous Communities made their own accessibility regulations, laws and correspondent decrees of development. These are resumed in the following chart:

Table 6. Accessibility laws and Decrees at an autonomic stage: UDO source.

Año	Law	Decree
1987		Murcia
1988	Navarra	
1989		Navarra
1990		Cantabria
1991	Cataluña	
1992		Andalucía
1993	Baleares	

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Año	Law	Decree
1993	Madrid	
1994	Castilla La Mancha	
1994	La Rioja	
1995	Asturias	
1995	Canarias	
1995	Murcia	
1995		Cataluña
1996	Cantabria	
1997	Aragón	
1997	Extremadura	
1997	Galicia	
1997	País Vasco	
1997		Canarias
1997		Castilla La Mancha
1998	Valencia	
1998	Castilla León	
1999	Andalucía	
1999		Aragón

Año	Law	Decree
2000		Galicia
2000		País Vasco
2000		La Rioja
2001		Castilla León
2003		Asturias
2003		Baleares
2003		Extremadura
2004		Valencia
2007		Madrid

Since the presentation of the results from the detailed analysis would far exceed the limits and objectives of this inform, it can be summarized a common line in all of them which would be reflected in concepts or principles repeatedly included in regulatory dispositions such as:

- "Equal opportunities"
- "Outlawing any type of discrimination"
- "Positive action measures"
- "Means, support and resources"
- "Full and effective participation"
- "Removal of social obstacles attending to special situations of disability"
- "Assistance to the specially disfavoured social collectives"
- "Urban, architectural, transport and communication accessibility"
- "Attention to the special educational needs"
- Etc.

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As a negative balance, the following aspects are to be highlighted:

- Great dispersion of regulations: 17 laws (19 counting Ceuta and Melilla).
- Criteria diversity, including the technical ones.
- They are based on the old conception of the LISMI.
- Object: Accessibility mainly to the physical environment; to transport; to communication just the most recent ones; they lack the scope of universal accessibility.
- Very scarce practical effectiveness.

Municipal stage

The regulations related to the issue of accessibility and the aspects they could directly or indirectly affect to universities are gathered in the correspondent Urban Development Plans, Municipal Town Planning Ordinances and Accessibility Plans.

ANNEX 2: QUESTIONNAIRE ON THE ACCESSIBILITY SURVEY

You can fill this questionnaire on that same document in Word format and then send it back electronically or by e-mail.

If you have any doubt or you require further information you can call the following numbers…. And ask for… you will be gladly attended. You can also write to the mail written below.

Thank you very much in advance for you invaluable collaboration.

Please, send it to:

IDENTIFICATION DATA:

University……

Person who fills the questionnaire……

Charge……

Data of filling the task. ……

PREVIOUS QUESTIONS:

(Write an X the answer you consider)

- Has the university a written **Accessibility Plan**?

  YES/NO

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- What stage is it on?

- Development, approved, initial application, advanced stage of evaluation-improvement.

- How old is it?

- Is there a University the **Responsible figure of Design for All or equivalent**?

  YES/NO

  In case of being it called differently, how is it entitled?

- Is there in this University a **Disability Student Service office**?

  YES/NO

- Have there been carried out **accessibility evaluation plans or audits**?

  YES/NO

- Has the University got a **Quality Certificate**?

  YES/NO

- Does the university have the **DALCO requirements** (Ambulation, apprehension, location and communication) of the Technical standards UNE 170001-1: global accessibility?

  YES/NO

PHYSICAL ACCESSIBILITY:

- Does the university have **accessible transport** to the campus or correspondent buildings, or inter campus transport (on the need of moving because of being the services and installations of interest far away each other?

  YES/NO

  Observations or comments:

- Does the university have **Accessibility in its buildings** and, in them to their several floors (ramps in main entrance and other general access, emergency exit, lifts for accessing to different floors, etc.)?

  YES/NO

  Observations or comments:

- Does the university have **Accessibility in its buildings** and, in them to their different areas: rooms, assembly hall, library, laboratories, services and complements (secretary, bathrooms and coffee shop…)?

  YES/NO

  Observations or comments:

ICT ACCESSIBILITY:

- Does the university consider accessibility in **telephone channels** as a main or complementary way for carrying out procedures and managements of services (preregistration, registration, administrative consulting and managements, reservation of material from libraries or laboratories), study related issues or other needs? (specific examples: telephones with the appropriate environmental sound isolation, listening sound amplifier, light signals complementary to the acoustic ones, appropriate height for wheelchair users…)

  YES/NO

  Observations or comments:

- Does the university include accessibility in **web channels** so that in a main or complementary way allow procedures and management of services (preregistration, registration, administrative consulting and managements, reservation of material from libraries or laboratories), or for study related issues?

  YES/NO

  Observations or comments:

- Does the web from the university have the **TAW certificate** (accessibility test of web pages)

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ICT ACCESSIBILITY:

- Which **accessible teaching** resources or services does the university have?

  (Please, cross those it does not have)

  Curricular material accommodated in content.

  Curricula material accommodated in format.

  Service for the digitization of data, previous class notes, etc.

  Library accommodations (audio books, Braille…).

  Academic support or support to studies (tutor, support teacher…).

  Moveable and multiposition bookrest.

  Extensible support bar.

  Chair with supports.

  Laptops for students with disabilities that require them (low vision…).

  Tablet PC (accommodation for Retinitis Pigmentosa).

  Digital Boards.

  Camera video connected to a PC (for accessing to the content of traditional blackboards)

  FM broadcasters.

  Magnetic loop.

  Voice translators-synthesizers.

  Audio-text Transcription.

  Reservation of material from libraries through web and/or phone.

  Cite any other technical support or services that eliminate the possible barriers for accessing to the educational content (curriculum), the participation in activities (classrooms), the profit of methodologies and resources implemented (others), the realization without discrimination of procedures or evaluation channels that have not been previously mentioned (if necessary, describe their function and specific use between parenthesis.

- What resources of the ones described does the university provides (defrays, provides, maintains) and which ones does the student?

  University:

  Student:

- Which are the differentiating criteria?

- In relation to what the university provides, is there any organ, unit or service that has the responsibility for keeping and appropriate state and providing availability for a reasonably use of the available resources?

  YES/NO

  Which one?

ICT ACCESSIBILITY:

- In this university, are there **Services or specific programs for the support** to students with disability and promotion of the accessibility such as: (please, cross the ones that do not exist)

  Psycho pedagogical accommodations (curricular, methodology…)

  School orientation.

  Professional orientation.

  Job insertion and employability.

  Write others that exist in your university and are not mentioned:

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ACCESSIBILITY TO COMPLEMENTARY ACTIVITIES:

- **Does the university have accessibility to complementary activities** or of university extension (leisure, sport and culture)?

  YES/NO

- Please, describe what accessibility measures, products, resources, services… are available for those activities:

INFORMATION, DISSEMINATION, COMPLAINTS

- In this university, are there any **divulging and dissemination channels** of the existence, availability and requirements for the application, access and use of the accessibility measures, service and programs?

  YES/NO

  If the answer is YES, describe them:

TRAINING IN ACCESSIBILITY

- Is included the appropriate **training of the responsible staff** of the attention of students with disability: service staff, teaching staff, maintenance and installation and infrastructure staff?

  YES/NO

  If affirmative, number the activities carried out the last five year period.

- Is it considered the **inclusion of contents for the Design for all in curricula** of some faculty or in interfaculty or interdepartmental subjects?

  YES/NO

  Where?

ACCESSIBILITY POLICIES

- What **State or autonomous policies** are being applied in this University with the aim of promoting the accessibility? Are they considered effective for that purpose?

  Free registration

  Is it applied? YES/NO

  Is it considered effective? YES/NO

  Others:

- Does the university receive any **specific fund** fro the State, Autonomous Community or other institutions or organisms for the accessibility?

  YES/NO

  From who if affirmative?

- Is it foreseen that the **economic crisis** affect with **spending cuts** on the financial aids and/or the quality of the accessibility services and programs?

  YES/NO

- Does the university have any Contract-Program about Accessibility with any public or private institution?

  YES/NO

  Specify if affirmative:

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ANNEX 3. PICTURES TAKEN FROM THE FIELD VISITS

The study of cases provides a whole catalogue of basic actions of accessibility that need urgent application.

- Look picture 1. The exit of a lift is adapted with minimum dimensions required but regarding its location it is set after high height stairs and the alternative to that lift are the stairs. In this floor are several classrooms. The answer of the people responsible was: simply, there was nothing to solve because so far there was no case; there would be a problem if there suddenly came one. It can be seen the lack of signalling in stairs (lack of colour contrast) and an inappropriate design of the banister (banister ending 30 cm before the stairs last step).

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Picture 1. Lift exit

- In picture 2, there is an aula magna of another faculty with a structure of a graded amphitheatre. People with movement limitations have just the option of staying in the door entrance, the place the photo is taken from, with the added problem of the column in the middle of the sight. In the case of lecturers or members of the tables, getting to that table can be done just through the exit door back the whiteboard. Looking at the case of stairs, these have no colour contrast in all their length and the column in the middle of them has no round smooth corners or horizontal colour strips for differentiating the steps.

Picture 2. Aula magna with a graded amphitheatre shape.

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- Similar inaccessibility has the following centre. Although with an original snail shape, the corridor has stairs in its beginning, also with no colour contrast in their nose mouldings. Besides, along this corridor there are added obstacles in the entrance to classrooms as they have a stair. Regarding handrails, they lack 30cm length in both its beginning and end. (Picture 3 and 4).

Picture 3. Stairs in a corridor.

Picture 4. Corridor and a stair at the entrance of a classroom.

- Double inaccessibility of toilets in their entrance and their WC compartments by having a stair and an inaccessible space based on their dimensions. The floor and the walls are designed with shining materials, which cause harmful reflects. Moreover, there is no colour contrast between the bathroom, floor, wall and stair. All this makes the safety in the toilet difficult for a person with visual problems.

Picture 5. Toilet entrance

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- The main entrance of the faculty from picture 6 can be accessed just through the stairs shown in the photo. Any person with motor disability has the exceptional possibility of accessing to the building by using the service door (for rubbish, maintenance…) set in a lower level, on a side of the building.

Picture 6. Stairs for accessing the main door.

- In contrast, there some other accessible practices such as an accessible front desk (picture 7); classroom with space for a wheelchair (picture 8); classroom with speakers for facilitating hearing (picture 9); ramp harmonically integrated in the urban and environment aesthetic (picture 10); reserved parking space with appropriate signalling; and accesses and paving floors in the appropriate buildings (picture 11); aula magna with accessible access to it; to the platform; with speakers and appropriate lighting; non-slipping floor (picture 12); folding classroom furniture, suitable for a wheelchair or other disabilities (picture 13).

Picture 8. . Classroom with space for a wheelchair.

Picture 7. Accessible front desk.

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Picture 9. Classroom with speakers for facilitating hearing.

Picture 10. Ramps harmonically integrated in the of the urban and environment aesthetics.

Picture 11. Parking spaces reserved with appropriate signalling, accesses and pavements specific to the correspondant building.

Picture 12. Aula Magna with access to it, to its platform, containing speakers, appropriate lighting and non-slipping floor.

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Picture 13. Folding furniture, appropriate for wheelchairs and other disabilities.

ANNEX 4. INTERVIEW GUIDE ON THE STUDENT WITH DISABILITY

Self-introduction

Talk about you. Who are you or how would you define yourself? How is your family and what is your paper in it since it has been your group for co-living until this moment (relationship with the members)? Couple, group of friends, sons/daughters, do you do something else apart from studying? What are your hobbies? And which are you priorities in life?

Training trajectory

University studies

Motivations for continuing with the studies to a professional level (personal and professional aspirations). Persons and elements that determined your motivations (preferences, personal aptitudes, field of knowledge, type of studies and possibilities for a professional performance and lifestyle to which one can be able to access with such training, the study centre chosen and the social pressure).

Experience in the university context. Personages and elements that are seen as fundamental for your experience as a university student characterized by whether they have a facilitating role or have implied a difficulty.

How has been the process for integrating in the university environment, what elements (human and material) do you see as fundamental for such a process?

Is there any personal characteristic you see determinant for that integration process in the university world?

Have you created your own "adaptation formulae" (skills of all kind, instrumental, social…)?

In general terms, how would you evaluate your experience as a university student?

In academic terms

In relation to the interaction to other people

Which could be those personages and elements that are key for you (both, in a positive and negative sense) for your development as a university student? Why?

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At a level of material resource (installation of the study centre, technological accommodations, economic aids, mobility facilities)

Regarding Human resources in the centre of studies, the sensitivity and type of general and specific attention services; and, on the other side, the behaviour of the teaching staff and class mates.

Social resources and pressure "outside the university world": those people that are part of your social network.

Social and labour **prospect** (life style) regarding the university education chosen to pursue.

How would you like to live in the future? What do you expect from the chosen university studies in terms of labour opportunities and personal satisfaction?

Did you have the same expectations before starting the studies from now? Has your experience in the university world influenced somehow in your current perspective; regarding what elements or personages?

How do you think that a university environment should be to be friendly for students with diverse functionalities?

Pre-university studies

Explain how your educational experience has been:

What institutions have you studied at (school, high-school)? what elements were taken into account for choosing the study centre? How as your experience as a student in such stages?

Which do you consider as the most important elements for your educational development?

At a personal level, your aptitudes and limitations.

At a social level. Family, social network, community (groups you take part in and the closest and everyday environment) model and guiding personages.

At a material level

What do you consider it would have facilitated your training or educational trajectory?

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2010 "DINS" AWARD SPECIAL MENTION ON THE RESEARCH FOR THE LABOUR INSERTION OF PEOPLE WITH DISABILITY

The aim of stating accessibility problems of the Spanish university, inspired the creation of the University and Disability Observatory (UDO) was born. Its objective is to know what factors influence the student with disability when choosing whether to go to the university or not; what kind of information is necessary to support his/her decision; what barriers are still in the university; how to improve services and benefits; how the teaching staff and mates behave; what study preference have the students according to their disability, what job opportunities or other paths these students have after finishing the degree; why academic failure or dropout occurs; what experiences and perceptions do they have from their university life; etc. All these points are study areas of the UDO.

The UDO is a joint initiative of ONCE Foundation for the cooperation and social integration of people with disability, and the Universitat Politècnica de Catalunya UPC-BarcelonaTech, which counts with the funding of the Operational Program of Fight against Discrimination from the European Social Fund.

In this context, The UDO starts its path of knowledge and divulging with the publication of this first report entitled: '*Accessibility in the university environment and its perception by students with disability*'

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