



Formación del profesorado universitario en TIC y discapacidad. El caso de la Universidad de Sevilla

Training of university teachers in ICT and disability. The case of the University of Seville

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RESUMEN.

La presencia de estudiantes con necesidades educativas especiales en las universidades españolas está incrementándose en las últimas décadas, siendo necesario la formación del profesorado en determinadas áreas. El estudio tiene como objetivo principal conocer las percepciones de los responsables tecnológicos y de formación de los centros universitarios de educación superior de Sevilla capital y provincia sobre el conocimiento del profesorado universitario en relación con las Tecnologías de la información y Comunicación (TIC), como apoyo al alumnado con discapacidad. Se ha implementado una metodología de corte cualitativo, siendo el principal instrumento de recogida de información las entrevistas semiestructuradas. La muestra del estudio ha sido compuesta por un total de 10 expertos en el ámbito de la discapacidad y tecnología. Atendiendo a las conclusiones del estudio presente, se hace notable la poca concienciación sobre la temática y el poco tiempo que dispone el profesorado. En cuanto a las principales barreras se encuentra también la falta de formación tecnológica que estos disponen a la hora de aplicar las TIC como apoyo al alumnado con discapacidad.

PALABRAS CLAVES.

Educación especial, enseñanza superior, tecnología de la información, discapacidad y enseñanza y formación.

ABSTRACT.

The presence of students with special educational needs in Spanish universities has increased considerably in recent decades, making it necessary to train teaching staff in certain areas. The main objective of the study is to find out the perceptions of those responsible for technology and training in university higher education centres in Seville city and province, more specifically, on the knowledge of university teaching staff in relation to Information and Communication Technologies (ICT), as a support for students with disabilities. A qualitative methodology was used, with semi-structured interviews as the main instrument for collecting information. The study sample consisted of a total of 10 experts in the field of disability and technology. In terms of the conclusions of the present study, the lack of awareness of the



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subject and the lack of time available to teachers are notable. As for the main barriers, there is also a lack of technological training available to them when it comes to applying ICT as a support for students with disabilities.

KEY WORDS.

Special education, higher education, information technology, disability and teaching and training.

1. Introduction.

The Spanish university is experiencing considerably a growing presence of students with educational needs, among which are those with some type of disability. This is possible, among other reasons, because the states are becoming aware of the rights and possibilities, but, above all, to the changes made in Spain since the International Convention on the Human Rights of Persons with Disabilities (UN, 2006). This convention constitutes the first binding legal tool in relation to people with disabilities and their educational inclusion. In it, all member countries are invited to make effective the right to lifelong education at all educational levels. One of the current teaching competencies is technological or digital, since we are immersed in the information and communication society. Thus, research on Information and Communication Technologies (ICT) constitutes a growing line of study, with great interest both in aspects related to equity and equality, as can be seen from numerous international agencies and organizations.

ICT can offer multiple possibilities to students with functional diversity due to disability, as indicated by Cabero, Córdoba and Fernández (2007): they help overcome certain motor, cognitive or sensory limitations; they contribute to improving the autonomy of students, adapting to individual characteristics; they eliminate marginalization, reduce the so-called digital divide; asynchronous and synchronous communication benefit; they eliminate marginalization, reduce the so-called digital divide; contribute to the development of skills and abilities in students; they favor leisure; stimulate motivation; they are very good simulators of eliminating marginalization; they reduce the so-called digital gap reality.

On the other hand, we also speak of Assistive Technology, which according to the World Health Organization (WHO, 2001), is a term that refers to all services and systems that are closely related to the provision of services and the use of assistive products. In general and in accordance with the Assistive Technology Act of 1998, in the USA, it is defined as "any item, piece of equipment or system, whether commercially acquired, modified or customized, that is commonly used to increase, maintain or improve the capacities of these people" (Lueder & Berg Rice, 2007).

In relation to ICT and disability studies, the first thing to highlight is the scarce presence of these works in our environment, with research directed more towards non-university levels (Rosario & Vázquez, 2012; Terigi, 2013; Rangel and Peñalosa, 2013; Ortiz et al., 2014; Fernández-Batanero, Cabero & López-Meneses, 2019).

Such knowledge becomes more necessary if we take into account that recently from the scientific literature ICT are presented as instruments with great possibilities to improve the educational inclusion of people with disabilities, and that, at the same time, they contribute to





overcoming the deficiencies that They are derived from cognitive, sensory, and motor limitations of the students (Córdoba, Cabero & Soto, 2012; Troncoso, Martínez & Raposo, 2013; Suriá, Martínez & Ordoñez, 2014). On the other hand, we are aware of the strong volume of ICT that lately appear for this type of student body at the higher education level, and that requires that the Educational Administration make specific efforts to increase the level of ICT skills in teachers university students, especially those who develop their teaching work in the different Faculties of Education, since they are in charge of training future teachers. In the Spanish context, in non-university education, the studies of Suriá (2011) can be highlighted, where he carried out an investigation to know the perception of teachers about their own training in the use of Information and Communication Technologies. Communication as support for the integration of students with disabilities. The results obtained from the research allowed to know that the teachers felt aware to treat students with disabilities in their classrooms, although the results suggested that the main factor was the lack of preparation of teachers in the use of these technological resources.

Pegalajar-Palomino (2017) aimed to understand the different perceptions of teachers of Primary and Early Childhood Education in ICT for the improvement of inclusive practices in the classes. The results obtained in this research indicated an improvement in the perceptions of ICT in future teachers, especially for students with special educational needs.

Fernández Batanero, Román Graván and El Homrani (2017) carried out a study to know the training of teachers in primary education in the autonomous community of Andalusia. The objective proposed in said study was to know if the level of training and technological knowledge is determined by variables (such as years of experience or gender) and to know the level of training and knowledge of teachers in relation to ICT as support to people with disability. At the end of this study, they concluded that the training of teachers in ICT to support people with disabilities is scarce in primary education (Fernández-Batanero, 2017; López-Meneses & Fernández-Cerero, 2020).

In the university sphere, as we have commented previously, studies in relation to technology and disability are very limited, being proof of this the last International Congress on Inclusive Education, held in Burgos in 2019, which had the participation of all Spanish universities, no contribution was presented in relation to ICT and disability in the university context. Similarly, it can be observed in the minutes of the 7th International Congress of Good Practices with ICT (Málaga, 2019).

In the international context, if there have been studies in this line, and related to assistive technology (Ari and Inan, 2010; Clouder, Cawston, Wimpenny, Mehanna, Hdouch, Raissouni and Selmaoui, 2019). We must also take into account the study carried out by Román Graván, Bersabé-Granado & Siles-Rojas (2020), who tried to learn more about the training of university professors in mobile ICT on functional and cognitive diversity. In this study, when selecting the applications to understand the objective to be carried out, it was divided into three phases. In the first place, the different applications that can be found in Google Play, secondly, the applications were cataloged through descriptors and finally, an analysis of the data of the applications was carried out. Regarding the conclusions of the study, they showed that most of the applications collected were closely related to motivation, the acquisition of school skills and the training of cognitive functions. In addition, the general functions of the applications



improved the symptoms of ADHD (being quite adaptable for students of school age). The study stated that, although many of the applications were not directly focused on the disorder, they did focus on its problems and symptoms.

Too, we can attend to the intervention carried out by Siles Rojas, Perea Rodríguez, Román Graván and Ballesteros Regaña (2020), with the intention of including students with autism spectrum disorder through educational robotics. This intervention would be carried out with Early Childhood Education students (25 students diagnosed with ASD) through collaborative work as the main methodology.

In this study we set the following objectives:

1. To know the perceptions of the technological and training managers of the university centers of higher education of Seville capital and province, about the knowledge of university teachers in relation to ICT as support for students with disabilities.
2. Know the benefits that ICT provide to people with disabilities.
3. Obtain information about ICT and disability training activities in university centers.
4. Identify the main barriers that hinder the development of these training plans.

To address the objectives in our work we explore the following research questions:

Q1. In the opinion of those responsible for training, are the teachers of higher education institutions trained to use ICT to support students with disabilities?

Q2. Do the teachers consider that ICT can be of great help to students with disabilities in higher education?

Q3. Are ICT training experiences carried out in higher education institutions in Seville and the province to support students with disabilities?

Q4. What barriers or obstacles hinder this formation?

2. Methodology.

In order to respond to the objectives that we propose, a qualitative methodology will be used, based from an interpretative paradigmatic perspective. We are aware that a good training of teachers requires a diagnostic study, in order to know the reality from which we start, with valid and reliable instruments.

In this study we opted for the interview as an element of information gathering. The interview script consists of 7 questions. Said interview script is an adaptation of the one used in previous research in the context of non-university education (Fernández-Batanero, Reyes & El Homran, 2018).

1. If we talk about functional diversity, what is the first thing that comes to mind? What does the concept of students with disabilities refer you to?
2. Today, what benefits do you think Information and Communication Technologies (ICT) bring to people with disabilities? Why?
3. At a general level, do you consider that university teachers are aware and prepared to help students with certain disabilities (visual, auditory, motor or cognitive ...) in the use of technical aids and the use of ICT?





4. Are training experiences developed in the university centers for the educational application of ICT to people with disabilities?
5. Does the University promote these initiatives and encourage the teaching staff? How is it promoted?
6. What are the main barriers you encounter for the development of these training plans?
7. Finally, any other comments you want to add?

Sampling.

The study sample was made up of 10 informants, all professionals in the field of technology, disability and training from the University of Seville, Loyola University, Osuna University School and CEU San Pablo University. Thus, we have proceeded to interview the director, 2nd. director and technicians of the Secretariat of Audiovisual Resources of the University of Seville (SAV), members of the Advisory Group for pedagogical support in digital technologies and resources, and directors and technicians of the technological support units and aid to the disability of the different institutions of higher education in the province of Seville.





 Univ. of Seville	 CEU San Pablo University	 Osuna University School	 Loyola University
5 informants	1 informants	3 informants	1 informant

Table 1. Universities participating in the sample.

We must clarify that the CEU San Pablo University and the Osuna University School are centers attached to the University of Seville, the Loyola University is a private training center, and the University of Seville is a public higher education center.

Category system.

The categories selected for the study have revolved around the interview script (sociodemographic factors; concept of functional diversity and disability; benefit of ICT; awareness and preparation of teachers; development of training experiences in university centers; promotion of training barriers to training and, finally, priority in teacher training.





Categories and definition	Subcategories	Evidence
Sociodemographic factors: Data on the context / environments provided by the interviewees.	Type of educational center.	- Public (PC); Private (PRC); Affiliated centers (AC).
	Occupied position.	- Directors / managers of ICT resource centers and service for people with disabilities.
	Gender.	- Hombre; Mujer
Concept of functional diversity: difference in how a person functions when performing habitual tasks (moving around, reading, holding, communicating, relating, etc.) differently from the majority of the population (Romañach and Lobato, 2005).	Has or does not have knowledge of the concept of "functional diversity".	"Functional diversity occurs to me to people who face a problem or a disability or dysfunction when faced with a task" (Interview 10).
Concept of disability: it refers to the deficiencies, activity limitations and participation restrictions that these people present (World Health Organization, 2001).	Has or is not aware of the term "disability".	"Normally a person with a disability has some kind of limitation, be it physical or purely cognitive" (Interview 7).
ICT benefits for people with functional diversity: improvement experienced by a subject with the use of ICT.	Accessibility.	"I believe that the greatest benefit is accessibility, that new technologies allow access to a world adapted to people with disabilities" (Interview 1).
	Autonomy.	"Diversity is quite wide, for example, since it can favor the student to have a greater degree of autonomy" (Interview 7).
	Communication.	"Use a series of both synchronous and asynchronous communication tools with their teachers and that they can also relate to their classmates" (Interview 7).
	Facilitates learning.	"We have many resources for these students who may have disability problems at any time during the teaching and learning process" (Interview 9).
	Integration.	"It is an important tool for their development, fundamentally academic, which is my work environment and I also understand their integration into society" (Interview 3).
	Adaptation.	"The accessibility of ICT allows precisely to adapt any content or training to people with disabilities" (Interview 5).
Teacher awareness and preparation:	Aware and prepared.	No interviewee has considered that the teachers are aware and prepared.
Awareness: perception by university teachers about the importance of carrying out training activities.	Aware yes, prepared no.	"I think the vast majority are aware, the vast majority, 80% if they are aware, but prepared I think not. I do not see them prepared for that task, I am speaking to you from my experience and that of my colleagues" (Interview 10).





Categories and definition	Subcategories	Evidence
Preparation: Level of training of university teachers.	Neither aware nor prepared.	"In general they are not aware or prepared, but it is true that, in my work, there is a lot of awareness and a lot of time is spent adapting these materials for the student" (Interview 9).
Development of training experiences: training actions created, planned and developed in the institutions.	Development or not of training experiences in institutions.	"At my university in particular, there is training, at least two or three monthly training sessions regarding some disabilities or educational needs that we have detected by department or branch" (Interview 2).
		"Not in our centers. No such tasks have been developed. They should perhaps have some specific training, both for students with disabilities and for teachers, who can teach those students with disabilities" (Interview 6).
Promotion of training: favoring in some way that an action is developed or that it increases a positive aspect towards it.	Promotion or not of training initiatives (Courses, work groups, projects or work plans, meetings, seminars).	"They are not promoted, obviously I cannot generalize to you, I am telling you about my university, they are not promoted because the disability is not visible, so there is no visibility of that disability because there are few cases" (Interview 1).
		"I believe that if things are done, but not the amount of things that should be done are done, nor is the teaching staff encouraged to attend" (Interview 4).
Barriers to the development of training plans: impediments that prevent or hinder the performance of training activities.	Lack of information.	"I believe that training plans are not offered and if they had I would be delighted as a member of the guidance service to receive them, because I believe that there is invisibility with those plans and training" (Interview 1).
	Economical.	"There is an economic barrier, but there is another barrier to face the problem, to say: this is not going to serve any purpose (Interview 10).
	Scarce training offer.	"Public institutions work on demand. If there is demand we promote it, if there is no demand for something, we do not promote it" (Interview 8).
	Shortage of students with functional diversity.	"For example, and I have written two books on ICT and equality, throughout my professional experience as a teacher I have had two students" (Interview 7).
	Lack of time.	"Time, yes, we are immersed in so many things that teachers have both teaching and research" (Interview 3).
	Awareness	"The main problem is that there is no global awareness that each of us has capacities developed in a different way" (Interview 8)

Table 2. Category system.





Procedure.

Given the current global pandemic situation, the interviews were conducted by telephone and recorded by digital recording, all with the informed consent of the interviewees.

For the content analysis, the following phases have been followed: formation of the categorical system, coding and analysis and interpretation. Given that the number of interviews carried out has not been high, we have proceeded to their analysis manually, not being necessary for this computer tools such as NVivo 11, HyperResearch or similar.

3. Analysis and results.

It is not highly significant, but, by gender, this has been the distribution of the participating sample:

Sevilla University				CEU San Pablo University				Osuna University School				Loyola University			
M(*)		F(**)		M(*)		F(**)		M(*)		F(**)		M(*)		F(**)	
f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
2	20	3	30	1	10	0	0	2	20	1	10	1	10	0	0

Table 3. Participants in the sample, by gender. (*) Female (**) Male.

Based on the perceptions of key informants, we present the results obtained below. For this we organize it according to the categories obtained from the interviews.



Figure 1. Categories analyzed.



Functional diversity and disability.

First, we will analyze the answers provided by the interviewees in item 1, that is, “If we talk about functional diversity, what is the first thing that comes to mind? What does the concept of students with disabilities refer you to?”

In relation to the affiliated centers, it appears that the vast majority of the informants have very similar notions about the concept of functional diversity.

“He has difficulties in some aspect of his life and I think a student with a disability is a person with limitations, limitations clearly imposed by society” (Interview 1).

Attending to private centers, they conceive the concept of students with disabilities to students who require certain curricular adaptations to benefit and help these students.

“For me, functional diversity refers to multiple things, I would not think of a specific disability or something specific to the student. I think it could be from a curricular adaptation, to a reorganization of the classroom or an adaptation of the structure to help the students in particular or the people who need it” (Interview 2).

Finally, with respect to public centers, similar responses can be found to the other centers. The interviewees state that this concept is closely linked to people who have some limitation, be it physical or cognitive, and need certain adaptations in their life.

“Functional diversity means needs and the concept of students with disabilities is a term equivalent to functional diversity. The term functional diversity is the most recent term, but because of my work right now the Junta de Andalucía and the state organisms, the concept they have assumed is that of people with disabilities” (Interview 4).

In conclusion, it can be considered that the interviewees handle quite similar concepts, such as, for example: people with limitations who need curricular adaptations.

ICT benefits for people with disabilities

Taking into account the benefits of ICT for people with disabilities, more specifically the question “What benefits do you think Information and Communication Technologies (ICT) bring to people with disabilities?”

Regarding the affiliated centers, the benefit most cited by the interviewees has been the accessibility to the contents, although other factors such as the independence of the subjects, autonomy and the ability to adapt the contents to their learning rhythms cannot be ignored.

“I think a lot. From my point of view, it is a window that opens for these people when it comes to learning at their own pace. It is a very important factor. In this sense, this type of learning is adapted to people using new technologies, either through a training platform, a YouTube channel, etc.” (Interview 6).



Secondly, considering private centers, it can be seen how accessibility and adaptation of content are the main benefits that people with disabilities obtain thanks to technologies..

“From my point of view, it opens the doors to the accessibility of content, they can do something much more visual or simple to be able to acquire knowledge through curricular tours or tools that are made specifically for certain disabilities at the time of being able to attend to the people who need it. I think it gives a more diverse answer” (Interview 2).

Finally, and based on the interviews of the participants belonging to public centers, the main responses were the autonomy of the subjects, the adaptation and accessibility of the contents, since this also allows favoring the labor and academic insertion, and their integration in the society.

“The diversity is quite wide, for example, since it can favor the student to have a greater degree of autonomy. It also allows people who have mobility problems to use a series of communication tools, both synchronous and asynchronous with their teachers and also to be able to interact with their classmates” (Interview 7).

In summary, the diversity of responses provided by the interviewees can be considered, creating a totally heterogeneous sample. Thanks to this, it has been found that accessibility and adaptation of content are the most cited responses.

Teacher awareness and preparation.

In response to the question "Do you consider that university teachers are aware and prepared to help students with certain disabilities (visual, auditory, motor or cognitive ...) in the use of technical aids and the use of ICT?", We can observe the existence of great heterogeneity in the answers provided by the various interviewees.

In the affiliated centers, it can be observed that there is disparity of opinions in this regard, some interviewees think that there is no awareness or necessary preparation in the university teaching staff. Others consider that the vast majority of teachers are very aware, but not prepared

“I have to give you a resounding no. It is true, perhaps because of the position I occupy or when I am going to ask my colleagues for some kind of adaptation, for a diagnosis, I have to give many explanations until these colleagues are able to cope with that situation. It is not because they do not want to, until a situation is presented to them in the classroom, they do not receive guidance, in this case, an academic guidance service” (Interview 1).





With respect to public centers, a great diversity can also be observed in the answers provided by the interviewees. Thus, as in the affiliated centers, there are interviewees who consider that the university teaching staff is “neither aware nor prepared” to address this situation, but there are also university teachers who, “if they are aware, but not prepared”. It must be said that all the interviewees who work in public centers responded by noting the lack of training of teachers in technological aspects. We must also clarify that all those interviewed agreed that teachers were not prepared to respond to disability through ICT.

“In general, they are not aware or prepared, but it is true that, in my work, when a problem of this type is presented to us by the teacher, because for them it is a problem that we have to solve, if there is a lot of awareness and spends a lot of time adapting these materials for the student” (Interview 9).

Finally, taking care of the private centers -Loyola University-, it is considered that the university teaching staff is aware, and that this awareness is carried out progressively, although there is still much to be achieved to satisfy all the needs.

“Increasingly aware, at least from the university that I represent they do very important work to get closer to the reality of the students and take into account what they need because if not, it will not be as close as possible to the need” (Interview 2).

In summary, as we have been able to verify in the answers provided in this category, there is no homogeneous response on the part of the interviewed subjects, causing a great disparity of answers when it comes to knowing their opinions regarding the awareness and preparation of university teachers. In this sense, it is the private centers that consider that there is greater awareness.

Development of training experiences.

Next, to the question of whether “are training experiences developed in the university centers for the educational application of ICT to people with disabilities?”

The affiliated centers (CEU San Pablo University and Osuna University School) consider that there are not enough training experiences in the university centers where they carry out their teaching work.

“If there is no awareness, they will not choose it, but what is an offer in general that reaches us without us having to look for it, has not yet reached me. I don't think there is” (Interview 5).

Regarding private centers (Loyola University), it is considered that, if there are training experiences in their university centers, although they believe that there is not enough demand, causing few technology training activities in the respective university centers.





“At my university in particular, there is training, at least two or three monthly trainings regarding some disabilities or educational needs that we have detected by department or branch. In general, from my experience at the University of Seville, I believe that there is not enough training in technology, which is what the question refers to when responding to those needs” (Interview 2).

Finally, taking care of public centers, as in the affiliated centers, there is not enough training or experiences for the application of ICT to people with disabilities, being those that are null or scarce.

“No, not in university centers as such. It is true that SACU does offer support services in this regard. We, I point out here, that we do from subtitling, which is to put the text under the video, sign language” (Interview 9).

In summary, it can be considered that, both in the attached centers and in the public centers, these training experiences do not exist, and those that are carried out are very scarce. On the other hand, private centers do consider that this type of training is provided, although it is not enough to serve all teachers.

Promotion of training

Next, with respect to the analysis of the answers provided by the key informants to the questions “Does the University promote these initiatives and encourage the teaching staff? In what way are they promoted? Say that, in the affiliated centers, the responses range from those who consider that they are not promoted from the institution itself and those who state whether they are promoted from the university (even if they are few) but not teachers are encouraged. In turn, the informants consider that the ICE provides this type of training.

“I believe that they are not promoted. They are not promoted, I obviously cannot generalize to you, I am telling you about my university, they are not promoted because the disability is not visible, so there is no visibility of that disability because there are few cases” (Interview 1).

Regarding private centers, it is considered that, if training initiatives are promoted, although these are scarce, and that they should be more abundant. Regarding the incentives for carrying out these activities, it is considered that the teachers are given little incentive to get involved in the experiences. Like the affiliated centers, the Institute of Education Sciences (IES) is the main institution that promotes these initiatives.

“Following the line of the previous answer that I have given, at my university, at least yes. Maybe it would be necessary to encourage more, depending on the areas. In general, in the degrees of education I think so” (Interview 2).





In relation to public centers, a great diversity of provided answers can be found. While some think that their institutions do not promote the initiatives, others consider the opposite, although their scarcity is emphasized. On the other hand, public schools consider that teachers are not encouraged in order to get involved in training experiences.

"I believe that if things are done, but not the amount of things that should be done are done, nor is the teaching staff encouraged to attend. Although if training activities are planned. Through ICE. There, training courses are held for teachers on different topics. That is the one I know, at least" (Interview 4).

In conclusion, although the vast majority of informants consider that their institutions do not promote or encourage teachers when carrying out training initiatives, it cannot be ignored how some of them consider that, if they are promoted and encouraged, although currently are scarce, with ICE and SACU being the main institutions that promote initiatives in the centers.

Barriers or obstacles to training

Regarding the answers to the question "What are the main barriers you encounter for the development of these training plans?" the following can be observed:

First, taking into account the affiliated centers, it is not considered that there is a homogeneous answer in their answers. Although many of the subjects commented that time is the main obstacle, the existence of other factors such as the lack of information and awareness on this issue and for economic reasons can be observed.

"The lack of information and, if any, the lack of information regarding these plans. Perhaps it would be necessary to give it more visibility if there were any" (Interview 1).

Secondly, in private centers, one of the main reasons that they have considered difficult when drawing up training plans, as in affiliated centers, has been the lack of time and awareness of their situation. students.

"I consider, on the one hand, the time that should be given for a training, in terms of the participants. I do not know if at the level of structural or human resources what it would be necessary to invest more or less. At the level of attendance and to achieve greater participation, I think that the adaptation of the schedules and the awareness of understanding that it is something important. Not that it is seen as something mandatory, if not as something necessary for performance " (Interview 2).

Finally, in relation to public centers, it is necessary to highlight the large number and diversity of responses provided by key informants. Like the previous centers, the limited time available to teachers and awareness are considered fundamental aspects, although some of them indicate that this may be due to the lack of demand from university teaching staff.





“Time. Yes, time, we are also immersed in so many things that teachers have both teaching and research. They do not understand that it is something that will benefit them not only for students with disabilities or functional diversity, but for all students, it is difficult for them to find the time for the development of this training” (Interview 3).

In conclusion, after analyzing the answers provided by the interviewees, it can be considered mainly that the most notable barriers when preparing training plans are the lack of time on the part of the teaching staff and the little awareness on the subject (ICT, training and disability).

4. Discussion.

The main discussions of our study, in relation to the results obtained and the research questions posed, have been the following:

Regarding the first research question, are the teachers of the higher education institutions of Seville capital and province trained in the use of ICT to support students with disabilities? He is aware of the importance of ICT with respect to students with disabilities, he is not sufficiently trained for its application. Findings coinciding with other studies carried out in the non-university context (Suriá, 2011).

Regarding whether, do the teachers consider that ICT can be of great help to students with disabilities in higher education? The teachers consider that ICT provide great benefits to university students with disabilities. This coincides with other studies carried out in our context (Córdoba, Cabero & Soto, 2012; Troncoso, Martínez & Raposo, 2013; Suriá, Martínez & Ordoñez, 2014)

Regarding whether ICT training experiences are carried out in higher education institutions in Seville and the province to support students with disabilities? There are not enough training experiences in the university centers where the study has been carried out. ICT experiences that are aimed at students with disabilities are very scarce, if not null. Most of the training activities that are carried out are aimed at the use of technology in students in general.

In relation to what barriers or obstacles hinder said training? The most notable barriers when preparing training plans are the lack of time on the part of the teaching staff and the little awareness on the subject (ICT and disability). In previous works in the non-university context, it is agreed that “lack of time” is the main barrier to training (Fernández Batanero, Reyes and El Homrani, 2017). On the contrary, non-university teaching staff is more aware than university teaching staff.

To conclude, say that the knowledge of specific technological materials for students with disabilities and the ability to apply teaching strategies and curricular adaptations supported by ICT, are the two main aspects that are considered necessary for the training of teachers in ICT and disability.

5. Conclusions.

To begin with, it is necessary to highlight the importance of Information and Communication Technologies in people with disabilities, providing multiple benefits in their daily lives and allowing greater development of the person in society. It can be observed that the university professors interviewed know the term “functional diversity” and “disability”, together with the





different benefits that new technologies can provide and the limitations of people with disabilities.

For this reason, after the research carried out, it has been possible to verify the diversity of perceptions that university professors have, the most outstanding being: the scarce awareness that there is about people with disabilities, and, on the other hand, the low level qualification that the interviewees affirm that university teaching staff present to work with this type of student body.

In addition, the lack of training experiences offered to university teachers on ICT that target students with disabilities is notable. This demand on the part of teachers should become relevant in society, offering different courses and training experiences that allow meeting the needs of individuals.

On the other hand, the main training barriers when training in ICT to support students with disabilities have been lack of time and little awareness on the subject, although it is necessary to highlight that there are other intervening variables: economic barrier, the small number of students with disabilities that teachers have in a university classroom or the scarce training offer that is offered.

In short, although the study of special education and Information and Communication Technologies separately have been highly studied topics, ICT as support for students with disabilities currently lacks relevant studies and research, being considered quite an important issue. and necessary in the educational field.

In our study, we can highlight two fundamental limitations: first, that it is an exploratory study, and to confirm the results, research should be carried out with a larger sample size, but given the limitations caused by the pandemic, it has been very difficult to gather to more key informants. However, we plan to expand it before the end of this year and thus also be able to establish comparisons between different provinces and autonomous communities.

On the other hand, the instrument used in the project only allows knowing those perceptions that the interviewees have considered important when answering the interview questions. It would be necessary to use various instruments that allow the collection of information, such as, for example, questionnaires applied directly to university teaching staff.

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