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# Learning from faculty members who carry out inclusive pedagogy in Spanish universities: the importance of accessible methodologies and resources

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## Introduction

Access to higher education (HE) for students with disabilities has increased considerably over the last decades. Faced with this reality, universities are increasing their effort and resources to provide adequate teaching in order to ensure the retention of students with disabilities (Collins et al., 2018; Gunderson & Cumming, 2023). However, there are still difficulties, such as a lack of accessibility and adaptations in teaching methods, as well as educational resources and assessments that prevent many students with disabilities from successfully completing their studies (Packer et al., 2024; Parsons et al., 2021; Shpigelman et al., 2022).

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Scientific evidence shows the way forward to design university policies based on the principles of inclusive education. A large number of studies recommend that HE should maximise learning and participation and make them accessible to all students, without exception (Agarwal et al., 2022; Fernández-Batanero et al., 2022; Moriña & Orozco, 2022).

Precisely, this paper aims to contribute to the knowledge about inclusive pedagogy through the voice of a group of faculty members who were identified as inclusive educators by their students with disabilities. This study shows the fundamental aspects that participants consider when designing and carrying out teaching practices that respond to the needs of all their students, including students with disabilities.

## Universal Design for Learning (UDL) and Inclusive Pedagogies to Promote Learning for All Students

The definition of inclusive education is complex. Over the last decades, many researchers have been interested in clarifying this concept and, above all, what inclusive educational practice means (Nieminen & Pesonen, 2022). Currently, two perspectives on inclusive education continue to coexist. On the one hand, the idea of individualisation of teaching persists, focusing pedagogical action on individual needs and developing specific measures (individual accommodations). At the same time, practices based on the social model of disability are also gaining popularity, where the diversity of students is considered in a general way, without distinguishing particular needs and offering learning options for all students from the beginning (Stentiford & Koutsouris, 2021). The first perspective is the most commonly implemented in HE institutions, since, as Edwards et al. (2022) state, reasonable accommodation is very important to provide equitable teaching and learning, even if it is a reactive measure that is carried out at the student's own request.

However, there is growing evidence of inclusive practices that are based on flexibility and choice to provide a proactive response to diversity. Universal Design for Learning (UDL) and inclusive pedagogy represent a paradigm shift on the road to inclusion. UDL is a form of instructional design that focuses precisely on designing and carrying out teaching and assessment in a way that they are accessible to all learners, not only those with disabilities (Malomo & Pittaway, 2021; Meyer et al., 2014). From this perspective, educators need to adapt their syllabi from the outset, rather than waiting for students' needs to be identified (Rydeman et al., 2018). The three principles of UDL (multiple options for engagement; representation; and action and expression) aim to achieve more inclusive teaching through the flexibility of ways for students to assimilate information, express what they know and be motivated to learn (Gunderson & Cumming, 2023; Rydeman et al., 2018). Although an increasing number of universities are joining the development of UDL principles in both face-to-face and online learning (Reyes et al., 2023), their application is residual according to studies, since faculty lack training or even time, as they prioritise research activities over teaching (Hills et al., 2022; Zorec et al., 2022). Furthermore, Edwards et al. (2022) warn that UDL is not infallible in meeting all educational needs, although it does greatly facilitate attention to diversity.

On the other hand, research on inclusive pedagogy also offers an alternative to the medical model of disability, with a focus on developing teaching-learning processes appropriate to the characteristics and particularities of all students and avoiding the identification of some with specific or special needs (Florian, 2010). As in the case of UDL, inclusive pedagogy recognises that diversity is present in any group, thus educators must have a variety of options for all students (Florian & Spratt, 2013). This pedagogy is based on four key elements that universities need to influence in engaging faculty members to design and develop inclusive practices: faculty members' beliefs about disability and diversity; their knowledge of students' needs and the processes for responding to them; subject planning that considers student diversity; and the actions and practices that are implemented to ensure learning for all (Florian, 2010; Gale et al., 2017).

In terms of teaching practice, the teaching methods that the faculty implement are a key determinant of student learning. Research indicates that university students, with and without

disabilities, show a decrease in motivation when learning with traditional methods, such as lectures with little participation, in which the student is not the protagonist of the teaching-learning process (Collins et al., 2018). Alternatively, an inclusive pedagogy should be based on methods in which the student takes an active role and develops constructivist learning (Scanlon et al., 2018). In addition, and in keeping with the UDL perspective, both teaching methods and resources should be varied, offering multiple options and being accessible to all (CAST, 2018).

### Accessibility and Technologies for Inclusive Education

A priority for achieving real inclusive education in HE must be accessibility. However, as Almeida and Fernandes (2016) point out, this is another issue that is limited to theory and educational policies, but does not materialise in practice. The scientific community has paid particular attention to the need to create accessible learning environments and processes for the inclusion of students with disabilities (Bong & Chen, 2021; Moriña, 2022). It is therefore necessary for faculty members to design and develop accessible methods and materials to guarantee that all students can access learning. These accessible learning experiences should be based on the design of processes, content and experiences based on the principles of accessibility and universal design. However, it is complex to ensure fully accessible design in advance and to eliminate the need for accommodations. Considering this reality, the key lies in listening to learners with disabilities and knowing what they need in order to respond to their needs (Chen et al., 2018).

The importance of accessibility stands out especially in the teaching resources used in the teaching-learning process. In fact, different studies indicate that inaccessibility in study resources and materials is one of the most important barriers that students with disabilities identify during their studies (Kimball et al., 2016; Moriña, 2022). When resources are inaccessible, some people cannot interact with or use the necessary materials. For example, this can be observed when subtitling is not used in audiovisual material, when the material is not compatible with assistive technology, or when non-editable resources with inappropriate formatting, colours or fonts are used. Faced with the problems caused by the use of traditional materials, such as printed documents and books, the application of technological tools to education has become not only a solution, but a necessity. In this sense, the use of information and communication technologies (ICT) is a fundamental factor in fulfilling the UDL objective of presenting content in multiple ways and offering various options for participation and expression of knowledge and skills (Xie & Rice, 2021).

ICTs have expanded exponentially in recent years in the university context, and universities are increasingly investing efforts in improving the accessibility of digital resources (Belenkova et al., 2022; Chen et al., 2018; Zorec et al., 2022). However, ICTs can also pose challenges for learners when they are not used appropriately or do not follow accessibility principles (Bong & Chen, 2021). Students with disabilities benefit greatly when a faculty member uses digital materials appropriately, as long as the materials are flexible, editable, and compatible with assistive technologies used by some students (Arzola, 2016; Sánchez Díaz et al., 2022). An increasing number of students with disabilities are choosing to study online, as they consider it more flexible, more accessible and more suitable for their psycho-emotional well-being (Reyes et al., 2023).

In the face of all the knowledge we now have about the need to carry out inclusive practices in HE, faculty members become the most important agents for transforming university teaching (Ehlinger & Ropers, 2020). Students with disabilities have identified instructors as a major barrier in different studies (Elbeheri et al., 2018; Spier & Natalier, 2023). Some of the difficulties encountered by students are the exclusive use of lectures by faculty members in their teaching, inflexibility in teaching, the lack of willingness to make adaptations, and negative attitudes toward disability. Other studies that have given faculty members a voice show that they are willing to make adjustments and help when the student needs it (Schreuer et al., 2024). However, they also recognise that responding to the needs of students with disabilities is a challenge in which they have little experience, and that they require further training in inclusive practices (Chen et al., 2018; Malomo & Pittaway, 2021) and in digital accessibility (Belenkova et al., 2022; Bong & Chen, 2021).

# Method

This article presents the partial results of a research project funded by the Spanish Ministry of Economy and Competitiveness (EDU2016–76587-R). The main aim of this study was to understand, describe and explain how faculty members who carry out inclusive pedagogy design and implement their teaching. This article focuses specifically on three research questions:

- What do faculty members consider when planning subjects to make them inclusive?
- How is the teaching methodology used to ensure that all students learn?
- What educational resources do faculty members use for inclusive teaching?

## Recruitment and Participants

In this study, 21 faculty members from different areas of knowledge (Arts and Humanities, Social and Legal Sciences, Health Sciences, Engineering and Architecture, and Educational Sciences) from six Spanish public universities participated in the study. Although national regulations advocate aspects such as the promotion of accessibility, participation and equal opportunities for all students (included in laws such as Organic Law 2/2023, of 22 March, on the University System, and Royal Legislative Decree 1/2013 on the rights of people with disabilities and their social inclusion), theory is far from reality, as this legislation depends largely on each university and the policies developed therein. In practice, there are still not many Spanish universities whose policies address UDL and/or inclusive education.

Two strategies were used to select the participants. Firstly, the disability offices within the six public universities were contacted. They were asked to share information about the research project with students with disabilities, who were requested to propose faculty members who had contributed to their educational inclusion during their studies. Secondly, the snowball technique (Cohen et al., 2000) was used by disseminating the information of the study to different members of the community in each university (students, faculty and administrative staff), who were asked to share with students with disabilities.

In order to enable students to identify potential participants, since not everyone is familiar with the concepts 'inclusion' and 'inclusive education', the research team offered an explanation of how an inclusive instructor should be. Specifically, based on the work of Moriña et al. (2015), the students were provided with a number of characteristics that inclusive faculty members should meet: they are facilitators of learning; they pursue active learning; they use different teaching methods; they show concern for their students' learning; they provide help when the student needs it; they are flexible; they motivate students; they encourage participation and group learning; and they make the student feel that they are important.

The students sent their proposals by email to the research team, providing the details of those chosen and the reasons for their selection. Subsequently, the team contacted the proposed faculty members by telephone and/or e-mail. In this first contact, they were informed about the objectives and procedures of the study and were invited to participate. They were also informed that they had been proposed by their own students with disabilities.

Regarding the profile of the participants, four faculty members belonged to Arts and Humanities (19.1%) (identified with codes Faculty 1 to Faculty 4), two to Engineering and Sciences (9.5%) (Faculty 5 to Faculty 6), four to Health Sciences (19.1%) (Faculty 7 to Faculty 10), three to Social and Legal Sciences (14.3%) (Faculty 11 to Faculty 13) and eight to Education Sciences (38%) (Faculty 14 to Faculty 21). Of the 21 faculty members, 11 were men (52.4%) and 10 were women (47.6%). In terms of age, two of them were under 35 years old (9.5%), 17 were between 36 and 60 years old (81%) and two were over 60 years old (9.5%). In terms of teaching experience, 13 participants had more than 10 years of experience (62%), while the remaining eight had between 5 and 10 years of experience (38%).

**Data Gathering Instrument**

The study followed a qualitative research methodology. An individual semi-structured interview was used as a data collection instrument. The interview explored how faculty members designed and implemented their syllabi. Some of the questions that guided the interview were: What do you take into account when you plan your subject to make it inclusive? Do you think that any student with a disability could take your subject as it is currently designed? If a colleague asked you for your opinion on how to make their syllabi inclusive and take into account all students, including students with disabilities, what advice would you give them? Of the teaching methodologies you use, which do you consider to be the most effective for all students to learn, and why? Which of these teaching methodologies do you consider for students with disabilities, and why? Do you use different resources to present the contents (printed texts, technological media, presentations, videos, etc.)? If so, why? In the development of your subject, do you use virtual teaching and/or technological resources? How do these resources influence the learning of students, especially students with disabilities?

The interviews lasted 90 minutes on average. The interviews were audio-recorded and transcribed for subsequent analysis. Most of the interviews were conducted face-to-face (n=16). However, five participants chose to conduct the interview telematically (Skype or phone call).

### Data Analysis

The data were analysed using a system of categories and codes created inductively, following the proposal of Miles and Huberman (1994). A structural analysis of the information was carried out following the three phases of this model. Firstly, the information obtained from the individual semi-structured interviews was transcribed. The transcripts were then read. From this reading, an inductive system of categories and codes was created to analyse the information. Once these categories and codes were created, all the information was read again to code it.

All the transcribed interviews were analysed inductively by two researchers. In those fragments where doubts emerged, these were discussed and agreed upon in a meeting of the research team. This analysis was carried out with the help of the MaxQDA data analysis programme. Three categories were used for the analysis of the information: Category 1 - teaching design; Category 2 - effective methodologies; and Category 3 - educational resources. These thematic categories arose emergently in relation to the research questions of the study. Category 1 included four codes: reactive response to needs; proactive response to needs; flexibility; and accessibility. Category 2 included four codes: diversity of methods; teamwork; active learning; and methods for students with disabilities. Lastly, Category 3 included four codes: diversity of resources; human resources; technological resources; and accessibility.

#### *Research Ethical Issues*

Prior to data collection, the participants were asked to sign an informed consent form. This document provided information about the interview process and how the data provided would be treated. The research team guaranteed that the information of the participants would be treated confidentially and anonymously, and they offered the participants the possibility of leaving the study at any time at the participant's discretion. In addition, it was guaranteed that each participant would be able to review the interview data after analysis. The project received ethical approval from the project's funding agency.

## Results

The results are divided into three ideas, according to the three categories used for data analysis: firstly, the results of the category “teaching design” are presented, showing the previous considerations of the faculty members when designing their teaching; secondly, the category “effective methodologies” addresses the characteristics of the teaching methodologies that the participants implemented to ensure educational inclusion; finally, the teaching resources used for inclusive teaching are shown in the results of the third category, i.e., “educational resources”.

### What Do Faculty Members Consider When Planning Inclusive Subjects?

All 21 participants agreed that, when they planned subjects, they planned them for all students, not only for those with disabilities. They designed subjects that did not anticipate the possible needs that might be associated with disability, although their designs were open to all necessary modifications when a student needed them. This meant that the responses of the majority of participants (n=13) were reactive rather than proactive, not designing syllabi based on UDL principles. That is, they made the necessary adjustments once the student encountered barriers to learning or participation:

> I draw up the syllabus and I am not thinking about disability, I am thinking about the students in general and, when I meet students with disabilities, what I do is an adaptation; I adapt on a personal level (Faculty 10).

Only eight faculty members recognised that their subjects could be taken by any student without adaptation. Their designs were accessible from the start and planned according to the multiple forms of expression, representation and involvement proposed by UDL:

> At all times, the view is for everyone. So, all the resources are in line with the different principles of UDL and, in addition, as they are working in teams, in cooperative teams, they have the support of their peers (Faculty 20).

Regarding the key aspects of making subject planning inclusive, with the exception of three participants who felt they were not sufficiently trained to make recommendations, it was important for the faculty members to be flexible and willing to make any changes that might be necessary during the course:

> Openness and flexibility to adapt the programme to each of the needs of the students in the classroom (Faculty 19).

When teaching, they stated that they had to consider all students, with the necessary empathy to recognise that some students would not be able to participate, based on how the syllabus was designed, and thus they would have to redesign it in a different way. They also took into account that their teaching should be accessible, listening to the students in order to find out their needs and how to respond to them, and making use of a variety of active and participatory methodologies to suit different learning styles. To this end, they stated that university staff should be trained and informed about inclusion and teaching strategies that promote inclusion:

> I think that, before writing the [teaching], considering everyone and putting yourself in the other person's shoes is what makes it easier for you to realise that there is someone who could not do this or who would need to do it in this way or with this help (Faculty 20).

**What Is the Teaching Methodology That Faculty Members Use To Ensure That All Students Learn?**

The participants highlighted teaching methodology as a key element for inclusive teaching. When asked about the key to an effective methodology for all, they agreed on the importance of flexible and personalised teaching. Some of them (n=7) did not base their teaching on a single method, but combined different strategies to adapt to the individual characteristics of all students:

> Therefore, the methodology to be used is a customised methodology (Faculty 4).

The faculty members recognised that each student was different, not only in terms of disability-related issues, but also in terms of learning styles and preferences for working with the subject. Their intention was to achieve an appropriate academic experience for all of them, considering their differences:

> I think that we are all different, that everyone has their own method, their own way of learning, and trying to do different things to explain the same thing from different methods can be good, because some people learn it in one way, while others learn it in another way... (Faculty 6).

Among the methods they used, those involving students working in teams were very common. For some participants (n=5), collaborative work promoted students to learn more and better than individual and traditional methods:

> Teamwork in a relaxed environment because they learn a lot more (Faculty 6).

The essential element in all the methods reported was the active role that the students should play in the teaching-learning process. The participants considered that good learning took place when the student was the protagonist of the process, rather than simply receiving information from the instructor. In addition, the participants alluded to other methods that fulfilled this characteristic, such as flipped-classroom, project-based learning and case study:

> Yes, it is true that all students benefit from dynamic and participatory classes in which they have to interact, and not only students with disabilities, but all students in general (Faculty 19).

Finally, we asked the participants about the most important methodological strategies for students with disabilities to learn adequately. Faculty members (n=13) agreed that they did not distinguish between students with and without disabilities, but applied the same methods. Active and participatory methodologies emerged as a fundamental aspect for the learning of all students, regardless of their individual characteristics.

One important issue that one faculty did point out when working with students with disabilities was the need for coordination between the different faculty members teaching that student:

> A very important element is coordination among the teaching staff. In the case that a person with a disability has been detected, it would also be very important to monitor what the faculty members are doing in each subject (Faculty 14).

**What Educational Resources Do Faculty Members Use for Inclusive Teaching?**

In addition to the use of a variety of teaching methods, the participants also considered the use of educational resources to be crucial for inclusive pedagogy. This diversity of resources benefited the teaching-learning process through the use of multiple formats.

In addition to material and digital resources, some faculty members made use of human resources other than themselves (n=2). An example of this was the visits to the classroom by experts on a subject to connect the subject with the professional and/or social reality:

> I also use external people who come to my class to give lectures. I always bring in someone from outside to lecture on a topic as well. I bring guests to my class (Faculty 19).

However, the types of resources that were most frequently repeated by the participants were those related to the use of technology. Audiovisual resources were of great relevance in the participants' teaching. Thus, seven of the participants commented that their classes were

usually accompanied by resources such as videos, images or presentations. Other faculty members even recorded their sessions on video, or made explanatory videos for later viewing by their students:

> I use slides, I use videos, I use short films, I use “youtubers”… (Faculty 19).

These resources tended to be the most widely used, as they were tools that were being incorporated into university teaching in a highly generalised way. Nevertheless, other faculty members used more innovative digital tools and applications (n=14), such as mobile devices, augmented reality, gamified applications, simulation dummies and connections via QR codes:

> In addition, we are working with an augmented reality application on their devices. When you explain it and they are seeing it on their devices, they enjoy it more than when you explain it and they don't see it (Faculty 2).

Seven participants used websites and social networks. In addition to the e-learning platform itself, which is a commonly used resource, there were faculty members who included the use of social networks such as Facebook or Twitter. In this way, they were closer to the social reality of their students, who are accustomed to using such tools in their personal and social lives:

> We use the virtual classroom, YouTube, social networks such as Facebook, Twitter... We also use a webpage for the subject so that, apart from the virtual classroom, they also have their own webpage for the subject (Faculty 16).

In some cases, technological resources had become essential for students' learning due to the very nature of the subject matter. They emphasised that technology-mediated teaching greatly facilitated the understanding of the content:

> Because if I don't use all these resources, my subject cannot be taught. If we are talking about anatomy and they have to imagine the bone, then I can't… And nowadays we have a lot of resources, and my subject cannot be taught without resources (Faculty 8).

Another strong reason for using such resources was accessibility. Some participants (n=9) considered the different learning styles, preferences and abilities of students, thus using different formats of materials and resources ensured that each student found a suitable option for their individual characteristics:

> Because you have to get there anyway, that is to say, they have their preferences, they are not always the same, so I try to have a diversity of means so that everyone gets there and takes what suits them best (Faculty 5).

Regarding students with disabilities, nine of the faculty members aimed to comply with this principle of accessibility, modifying resources and adapting them when necessary to facilitate access to the subject for all students. For example, they used subtitling of videos or accessible and editable formats and fonts, reducing any barriers that the resources might present for a student with a disability.

An important insight in relation to the adjustments made for students with disabilities was that these adjustments benefited not only the students targeted by these changes but all students, including those without disabilities:

> Well, what I liked the most was the innovation project I had with the blind student. I presented a project, subsidised, with the help of the secretariat of audiovisual resources, and we transformed my teaching material into accessible web content. That is what I liked the most, because it was a very enriching experience, not only for the blind student, but for everyone, since they had audio and video and if they didn't want to read they could just listen, and it was much better for them (Faculty 18).

Given the flexibility provided by technological resources, some participants felt that the greatest beneficiaries of the use of these resources were students with disabilities, as the technology helped to reduce the limitations they might encounter when interacting with the materials:

> Well, then these resources are there for the students, and the ones who really benefit from ICT are the students who have some kind of disability because there are no limits (Faculty 8).

However, as with the teaching methodology, most participants did not make a distinction between students with and without disabilities but considered that all students benefit from the use of technology for learning. Faculty members recognised that their students are nowadays digital natives. As a result, four of the participants stated that technology was successful in increasing students' motivation and achieving a more participatory and active attitude:

> They are used to using new technologies because they are millennials, but they are not accustomed to using them to learn, they are accustomed to using them to criticise, to hinder, to laugh... But they also learn to use them to learn, and that is important; in fact, it gets them really engaged. Picking up their mobile phones in class to do something other than talk to their friends on WhatsApp also motivates them a lot (Faculty 16).

## Discussion

Most of the participants in this study, although they designed their syllabi with all their students in mind, acted reactively rather than proactively. However, they personalised their teaching to the needs of their students and made adjustments wherever necessary. Studies highlight the importance of accommodations to better support students with disabilities (Collins et al., 2018; Edwards et al., 2022; Elbeheri et al., 2018). Nevertheless, in some cases, despite the acknowledged benefits of accommodations, they can lead to negative stigmas associated with disability, thereby negatively impacting interactions with peers and teaching staff (Edwards et al., 2022). Therefore, instead of conducting individualised accommodations, faculty members could implement organisational and methodological measures that benefit the participation of all students, especially those with disabilities. Designing flexible and universal teaching in a proactive way considerably reduces the need for subsequent adaptations. However, it should be noted that it is very complex to consider all possible situations that may occur throughout the academic year. Therefore, faculty members should always be prepared to make adjustments whenever necessary. Although there is still a long way to go for universities to be truly inclusive and accessible, this study shows that inclusion is possible and that some faculty members design their teaching and learning plans considering the diversity of their students and their different learning styles, motivations and needs. They adapt their teaching and curricula from the outset to promote the participation and inclusion of all. Similar results appeared in the

studies of Rydeman et al. (2018) and Scanlon et al. (2018). In doing so, they design their subject matter to be more accessible, especially for students with disabilities (Spier & Natalier, 2023). Other studies support the importance of moving toward the UDL principles, as was demonstrated during the COVID-19 pandemic, since it reduces the need for individualised accommodations while improving access and participation for all students (Parsons et al., 2021).

However, in order for faculty members to implement these UDL-based actions, they must be trained in methodological strategies that enable them to move toward a more inclusive pedagogy (Ehlinger & Ropers, 2020; Moriña, 2017; Stentiford & Koutsouris, 2021). Furthermore, Chen et al. (2018) highlight the importance of allocating time and resources for faculty to learn about inclusion and how to carry out accessible teaching. The results of our study support the need for faculty training that is evident in these studies as participants recognise and demand more training in inclusive strategies to be able to teach all their students adequately.

The faculty members who participated in this study identified flexibility and the willingness to make any changes needed by students, negotiating with them and using a varied teaching methodology as key elements to attain inclusive teaching. Both in the planning of the subject and in the methodology used, the importance of flexibility should be emphasised, thus making teaching more personalised and inclusive (Rydeman et al., 2018). In line with other studies, this flexibility in the teaching and learning process is achieved by actively listening to students' needs and considering their diversity (Florian, 2010; Gale et al., 2017). This can respond to students' different learning styles, preferences and abilities. Therefore, it is important to foster a positive and participatory classroom climate, where faculty-student communication is fluid.

In addition to flexibility, faculty members should combine different methodological strategies to respond to the individual characteristics of all learners. It is recommended that these methodologies are active and participatory (Florian & Spratt, 2013). These types of teaching methods offer all students the same opportunities for participation, as the environments with which they interact are accessible (Collins et al., 2018). In addition, the learner takes a leading role in the teaching-learning process (Scanlon et al., 2018). Ultimately, these methodologies benefit everyone, making no distinction between students with and without disabilities. Coinciding with the evidence offered by these authors, our study shows that faculty members who carry out inclusive pedagogy take flexibility and variety as fundamental premises in their teaching. The participants used a combination of methods to adapt to different student profiles, opting for active and participatory strategies. As with inclusive pedagogy, to put them into practice instructors need to be trained in these inclusive strategies.

There is evidence that training in inclusive education and UDL has significant benefits for faculty members. Studies such as Carballo et al. (2021) and Xie and Rice (2021), which have evaluated the effects of training on instructors, show that it improves their sensitivity to people with disabilities, provides them with tools to make their teaching inclusive and helps them to teach more and better. Participating in UDL training experiences specifically improves faculty knowledge about designing accessible syllabi, using educational technology and applying different forms of assessment.

To comply with the principles of UDL, both methodologies and resources must be varied, offering a multiplicity of formats and using accessible elements that ensure the participation of all (CAST, 2018; Xie & Rice, 2021). Therefore, active methodologies such as cooperative work, flipped learning, interactive groups, project-based learning and case studies are increasingly used in universities, as evidenced by the findings of this study.

In this context, the wide variety of educational resources used by the participants in this study stands out. These benefit the teaching-learning process given the dynamism they provide, as well as the different possibilities they offer for accessing content (Reyes et al., 2023). However, as Chen et al. (2018) demonstrate in their research, there is a lack of accessible resources due to the lack of support from the university institution, as well as the need for training and previous experience of faculty members on how to adequately include all students.

Among the resources used, those related to the use of technology stand out. Although some studies point out that the use of digital tools leads to barriers and inaccessibility for students with disabilities (Bong & Chen, 2021), our study shows that the use of technology plays a crucial role in ensuring students' access to and participation in educational services in HE institutions (Seale et al., 2021). Furthermore, the use of technology can increase students' motivation, leading to more positive attitudes toward learning (Sánchez-Díaz et al., 2022). Therefore, technology can be a great resource to improve learning as long as faculty members make good use of it, ensure its accessibility and know how to select resources according to the characteristics of each student, since the resource that works for one student may not be valid for another.

Finally, in our study, as Arzola (2016) corroborates, the use of digital materials that are accessible, editable, flexible and compatible with assistive technologies works in favour of learners with disabilities. However, creating and using accessible digital learning materials is a challenging task (Chen et al., 2018). Therefore, as with subject design, the appropriate use of technologies in the university classroom must be accompanied by prior pedagogical work on the part of faculty members (Elbeheri et al., 2018; Gale et al., 2017).

## Implications for Policy and Practice

This study provides scientific evidence with implications for both university policy and teaching practice. Firstly, although university regulations increasingly include instructions to ensure quality education for students with disabilities, it is essential to train academic staff to comply with these instructions (Nel et al., 2023; Sandoval et al., 2020). In fact, universities should set out a clear model of mandatory and minimum training for all their faculty members. This is known to be the case in very few countries and universities should therefore prioritise, in their policies, training actions for all faculty to learn how inclusive pedagogy, UDL, or accessible technologies, among other topics, can be implemented. Among the large number of training models, we recommend a model based on reflection-action-reflection. Universities should therefore prioritise, in their policies, training actions for all faculty members to learn how inclusive pedagogy can be applied.

Secondly, the implications for practice are linked to the teaching function itself. It is important that faculty members put their students at the centre, listen to their needs and design teaching

for all, without exception. This implies anticipating the diversity that can be found in classrooms and the fact that students learn differently and have different needs. Therefore, the following are essential ingredients for an inclusive teaching practice: flexibility and personalisation, methodological strategies and varied resources, and the essential affective and emotional component that mediates the learning processes.

## Limitations and Future Research

Among the limitations of this study, the time taken to recruit participants slowed down the study. To contact university students with disabilities, who were responsible for the selection of the study sample, we had to request prior support from the disability offices of the different universities. Another limitation of the study was the impossibility of conducting some of the interviews face-to-face, which were carried out via video-calls or telephone. The main causes were the lack of availability or the location of some of the participants. Another limitation is that this study considers faculty members from a global perspective and thus did not analyse their discourse from their field of knowledge. Therefore, it is likely that many contributions are biased according to the area to which they belong. A future study could focus on analysing inclusive pedagogy in each field of knowledge. A final limitation to note is that the participants did not include faculty members from the area of science and the analysis of inclusive science instructors is not present in this study. It would be advisable for future studies to focus also on science-related disciplines.

For future research, the study could be extended by direct observation in the classrooms to analyse these inclusive teaching practices in depth. The perspective of students, both with and without disabilities, could also be heard to provide a more complete picture to the analysis.

## Conclusion

Despite the barriers that make it difficult for students with disabilities to stay on and complete their studies, they currently have greater access to and participation in the university environment. This research highlights some of the fundamental aspects that faculty members consider when designing and developing inclusive teaching practices. On the one hand, it was observed that, although the faculty members of this study did not know that they designed and carried out their syllabi on the basis of UDL, in practice they were compatible with its principles. Likewise, the use of active and participatory methodologies, which place students at the centre of the teaching-learning process, is also pointed out. Furthermore, the variety of educational resources used (mainly digital) is another aspect that enhances inclusive teaching. These, in addition to offering a multiplicity of formats and boosting motivation, greatly facilitate the understanding and accessibility of the content, reducing the barriers that students may encounter when interacting with the materials.

In short, this study allows us to be optimistic and learn from faculty members who carry out an inclusive pedagogy. They show us that it is possible for universities to be accessible to everyone, respecting the inherent diversity of students and contributing with their attitudes and practices to the retention and successful completion of their degrees.

## Conflict of Interest

The authors disclose that they have no actual or perceived conflicts of interest. The authors disclose that they have not received any funding for this manuscript beyond resourcing for academic time at their respective university. The authors have produced this manuscript without artificial intelligence support.

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