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Analysis of the Voices of Faculty Members Carrying out Inclusive Practices Using ICT

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Annotation. This qualitative study explores the experiences of 119 faculty members who implement inclusive practices using ICTs in their classrooms. The results show the diverse materials and resources that they use to present content to students, the ways to facilitate the resources available to students, and the moment they make these materials and resources available to them. Conclusions present the conditions that determine the pedagogical use of technological resources by faculty to facilitate students' inclusion.

Keywords: *blended learning, accessibility, disability, higher education, ICT, inclusive education, faculty members.*

Introduction

In recent years, information and communication technologies (ICT) have had a direct impact on education. University education has not remained oblivious to the digital revolution (Zimmermann et al., 2019), and has implemented various actions to adapt its teaching system to the current reality (Campbell et al., 2020). In addition, the situation produced by the COVID-19 health emergency has further highlighted the need to use technologies and to know how they influence learning processes (Bong & Chen, 2021). In the specific case of Spain, the Universitic 2020 report highlights the provision of computer equipment to Spanish universities, the creation of IT services to support teaching,

the incorporation of multimedia resources in face-to-face teaching, and the increase in online training in face-to-face universities. These initiatives favour accessibility and enable the personalisation of the learning experience (Gómez, 2021), which is beneficial for all students, especially those with disabilities, whose presence in Spanish universities has increased in recent years.

National and international organisations have proposed various actions to face this challenge. Thus, the European Higher Education Area (EHEA), through the promotion of the Digital Education Action Plan (European Commission, 2018), proposes the development of a digital education system, where, through the use of ICT, the quality of teaching-learning processes is improved from a perspective of inclusion and accessibility. In Spain, the latest Status Report on Educational Technologies in Spanish Universities (FOLTE, 2018) states that Spanish universities have a high degree of implementation of educational technologies, and those various strategies are being implemented to ensure universal access to ICT educational services, regardless of the resources, networks, or capabilities of users. This impact of ICT on Higher Education allows university teaching staff to have a wide range of digital educational materials and resources at their disposal, which can be translated into learning opportunities for students (Grasha & Yangarber-Hicks, 2010).

Although several studies affirm that technological resources benefit all students (Edyburn, 2011; McMahon & Walker, 2019), few studies have focused on the use and effectiveness of these media in the university context, as well as on the impact they have on the learning of students with disabilities (Aquino & BuShell, 2020; Cabaleiro-Cerviño & Vera, 2020). Therefore, this paper analyses the voices of faculty members who carry out inclusive practices using information and communication technology in their teaching practices and how this impacts the learning of all students, especially those with disabilities.

Use of technological and conventional resources in higher education

In the university context, the incorporation of emerging technologies such as augmented reality, artificial intelligence, and robotics (McMahon & Walker, 2019), together with the fact that today's students belong to the so-called Net Generation (Saunders & Gale, 2012), requires a transformation in the way in which the teaching-learning process is developed (Bagur-Femenías et al., 2020).

This new educational reality requires a response to the diversity of students studying at university, promoting inclusive learning that guarantees the participation of all students, without exceptions. To this end, blended learning, which combines the use of elements of face-to-face teaching with technological elements (Aiello & Willem, 2004; Porter et al., 2014) and is used in traditional classroom environments, is presented as a beneficial option for students in general (Young & Nichols, 2017), and for students with disabilities in particular. As Seale et al. (2020) argue, technological media can mitigate the disadvantages that these students sometimes experience in their learning processes.

Several studies highlight written texts, manuals, traditional graphics, notes, and whiteboards among the most commonly used conventional resources in the classroom (Edyburn, 2011; Moon et al., 2012; Oliver & Herrington, 2001). However, the use of these materials and resources in classrooms is decreasing, as they can hinder students' accessibility to content, especially for students with disabilities. Currently, technological resources are gaining prominence in the classroom. The technological materials and resources most frequently used by faculty members include: 1) PowerPoint and Prezi presentations, which help students to focus their attention on the content, making it easier for them to follow the lectures (Ferreira et al., 2018); 2) videos, which can be used to support teaching, to provide students with additional content or to strengthen their understanding of curricular content (Dinmore, 2019); 3) digital texts, which show students the content of the subject and allow them to manipulate it (Edyburn, 2011); and 4) virtual learning platforms (Perera et al., 2021).

Virtual learning platforms deserve special attention as they can be used for various purposes, including learning, communication, administration, and faculty support (Chowdhury, 2020). Among their main uses, Chowdhury (2020) highlights their possibilities as virtual repositories, as means of communication between students and faculty members (through discussion forums, chats, announcements, and videoconferences) and as online grading and assessment systems, among other functions.

The combined use of all these resources, both conventional and technological, allows personalising and tailoring teaching for students, thus avoiding the assumption that one size fits all (Edyburn, 2011).

Impact of technological resources on student's learning

Blended learning provides substantial benefits for all learners, and especially for learners with disabilities. It allows adapting teaching to the different learning styles of students (Balakrishnan & Lay, 2016), facilitates accessibility to content (Edyburn, 2011; Young & Nichols, 2017), allows greater student's participation (Aquino & BuShell, 2020), improves student's communication when working in large classrooms, while allowing them to communicate in their own language, thus adjusting to the digital reality (Attwell & Hughes, 2010), and enables faculty members to offer readings in multiple formats (i.e., printed text, digital text in PDF, editable digital text, etc.).

Regarding the content used in this type of training, the use of online text benefits learners with disabilities insofar as they can use screen readers to facilitate reading or manage and organise information with tools such as Microsoft Word's AutoSummary (Edyburn, 2011). On the other hand, the use of video provides flexibility for learners as they can view them anytime, anywhere and on multiple devices. It also allows learners to rewind, slow down, and replay content when needed (Dinmore, 2019). Slide presentations can benefit all learners as long as they are properly designed and verified using PowerPoint's accessibility checker (Fichten et al., 2019).

Regarding the learning environment, among the benefits of virtual learning platforms, Chowdhury (2020), Fichten et al. (2020) and Lightfoot (2004) highlight the following: a) they save faculty' time and are environmentally friendly, as their use prevents unnecessary paper waste; b) they are intuitive, their use is usually simple and known by the educational community; c) they are accessible, as they give students the autonomy to view content on most electronic devices and from any location; and d) they allow faculty members to teach using more innovative teaching methodologies (i.e., flipped classroom).

Despite the benefits that technological tools bring to university students' learning, they can sometimes be a barrier for students with disabilities. Faculty members need to be trained in the accessibility and instructional use of technology, as it benefits all students and creates learning opportunities (Kent, 2015; Kumar & Owston, 2016; Regan et al., 2012).

Accessibility to achieve more inclusive practices

The effective inclusion of technologies in the teaching-learning process requires consideration of a number of issues to promote accessibility. Numerous authors point out some difficulties that students with disabilities may experience when using technological resources (Fernández-Batanero et al., 2022; Maboe, 2020; Rodrigo & Tabuenca, 2020). For example, videos shown in the classroom that are not subtitled or audio-described make access difficult for students with hearing or visual impairments (Seale et al., 2020; Youngblood et al., 2017). Regarding virtual learning platforms, if they are not accessible, they are unlikely to be inclusive. The main accessibility difficulties that virtual learning platforms may present include: 1) their design, which makes them difficult to use for students with disabilities, and 2) the inaccessibility of the presentations uploaded by faculty members (Seale et al., 2020), as they may contain elements (texts, tables, or graphics) that are not easily intelligible for these students.

Therefore, accessibility requires planned actions on the part of the faculty. Thus, providing material in advance, either slides, notes, or manuals in digital or paper format, is one of the measures that contribute to favouring accessibility to the content (Cotán, 2014; Díez et al., 2008). In addition, many authors suggest that, to avoid the effort of making unnecessary adjustments during the development of subjects, courses should be designed in an accessible way before the start of the course (De Bie et al., 2020; Roberts et al., 2011). In this context, technology is understood as accessible when everybody can perceive and understand the information presented for an equitable opportunity to succeed (Roberts et al., 2011).

In this sense, accessibility is linked to the social model of disability (Oliver, 1990) and universal design for learning or UDL (CAST, 2018). From the social model of disability, it is conceived that it is the environment that creates barriers for people with disabilities and not the other way around. In Higher Education, from this model it is understood that, if a student with a disability cannot access the materials, the resources must be changed (Kumar & Widerman, 2014). UDL is a practical approach that encourages a

change in subject design and teaching methods to provide learning opportunities that accommodate all students from the outset (Hills et al., 2022; Seale et al., 2020). This translates into providing multiple means of communication, engagement and expression (Hromalik et al., 2021; Williams et al., 2016).

Therefore, these principles of universal design can serve as a guide for making subjects more accessible, not only by making information available to learners in different ways (virtual learning platforms, email, print shops, etc.), but also by making the information used accessible, as well as offering different methods of presenting information (e.g. texts, visual graphic organisers, videos), or different formats and types of assessment, among others (Hromalik et al., 2019). In Spain, as in other countries, learning must be based on accessibility and UDL (Royal Legislative Decree 1/2013). However, in practice, studies conclude that most faculty members are not trained in this didactic approach and, consequently, do not apply it (Carballo et al., 2019; Heron et al., 2022). In this line, Seale (2014), points out the importance of faculty training to provide positive learning experiences and outcomes for students. To this end, she suggests that the content of such training should include technical accessibility issues; disability awareness, accessibility and equality; and design approaches related to UDL, among other issues. Training on these questions will contribute to the improvement of accessibility in university classrooms.

The objectives of this study were: 1) to determine what materials and resources, both technological and conventional, are used by inclusive faculty to carry out their teaching, and how these influence learning; 2) to determine the means used by faculty members to make these resources and materials available to students; and 3) to analyse the moment at which the material is made available to students.

Method

The design of this study falls within the qualitative paradigm. The results of this study are part of a larger research project, funded by the Spanish Ministry of Science and Innovation, the State Research Agency and the European Regional Development Fund (Ref. EDU2016-76587-R) and co-funded by the Regional Ministry of Economic Transformation, Industry, Knowledge and University of the Regional Government of Andalusia, within the ERDF Operational Programme 2014–2020 (Ref. US-1381423). This study focuses on what inclusive faculty members do and how and why they do it. This article analyses exclusively the inclusive actions of these faculty members in relation to the use of technological resources in the classroom as a complement to face-to-face teaching.

The Spanish university context

The faculty who participated in this study belonged to ten public universities in Spain. Following the distribution made by the EHEA, official university degrees are

divided into Undergraduate Studies (4 years) and Postgraduate Studies, which include Master's Degrees (1–2 years) and Doctoral Degrees (3–5 years). All these degrees follow a teaching system that combines classroom teaching with the use of Learning Management Systems.

In Spain, all public universities have Disability Support Services (DSS), and 19,910 students with disabilities are currently enrolled in degree courses (Fundación Universia, 2021). The DSS are responsible for ensuring that these students have the necessary resources for the development of their learning process and advise academic staff on the reasonable adjustments to be made, where necessary.

Participants

A total of 119 faculty members from 10 Spanish universities, belonging to all subject areas, participated in this study. As for the selection of participants, they were nominated exclusively by students with disabilities. For this purpose, the collaboration of the DSS of the different participating universities was requested. The technical staff of these services contacted the students registered in their databases and provided them with information about the project so that they could propose, on a voluntary basis, those faculty members who carried out inclusive practices. To this end, they were provided with a set of criteria to be met by these participants (Moriña et al., 2015), which are: *believes in the possibilities of all students; facilitates learning processes; their teaching is active, using different methodological teaching strategies; shows concern for their students' learning; shows flexibility, with a willingness to help; motivates students; maintains close relationships and favours interactions between students; makes you feel that you are important, that you are one more in the classroom; allows students to participate in the class and build knowledge together; the communication they maintain with you and with your classmates is horizontal.*

Regarding the profile of the participants, of the total number of faculty members, 24 belonged to the area of Arts and Humanities (20.2%) (Faculty P1 to P24), 14 to Engineering and Sciences (11.8%) (P25 to P38), 16 to Health Sciences (13.4%) (P39 to P54), 25 to Social and Legal Sciences (21%) (P55 to P79), and 40 to Educational Sciences (33.6%) (P80 to P119). With respect to gender variables, 69 were male (58.3%) and 50 were female (41.7%). In relation to age, 108 faculty members were between 36 and 60 years old, 7 were under 35 years of age (7.8%) and four of them were over 60 years (4.4%). Regarding experience, most of the participants had more than 10 years of teaching experience (68.4%), with only 6 faculty members (6.2%) having less than 5 years of experience and 24 participants having between 5 and 10 years (25.4%). All faculty members had had some previous experience with students with disabilities during their teaching practice.

Data collection instrument and procedure

The study was carried out on the basis of an individual interview in which three main questions were explored: 1) Use of different materials or resources to present content to

students and their influence on students in general, and especially on students with disabilities, 2) Means used by faculty members to make educational materials and resources available to students, and 3) When these materials and resources are made available to students. The interviews were carried out by members of the research team who had been previously trained for this task. Most of them were conducted face-to-face ($n = 89$), while 18 participants were interviewed via Skype and 12 via telephone. The interviews lasted on average 90 minutes. All interviews were audio-recorded and the faculty members gave written consent to the recording and use of the data for the purposes of the study. In addition, this study complied with the ethical requirements approved by the Ministry of Science and Innovation of the Government of Spain.

Data analysis

The information collected from the interviews was transcribed verbatim and processed through qualitative data analysis using an inductive system of categories and codes that allowed organising and making sense of the information collected (Miles & Huberman, 1994). Table 1 presents the categories and codes used for the development of this study.

Table 1

Categories and Codes System

Categories	Subcategories	Indicators (codes)
Use of media and teaching resources	Typology	Conventional and technological resources (A1) Analogue and digital media (A2)
	Educational implications	Participation, attention and motivation (B1) Adapting traditional training to digital reality (B2) Achievement of learning objectives (B3) Multimodal teaching (learning styles) (B4) Technological competence of learners (B5) Accessibility of content (B6)
Access routes to the material	Use of digital media	Digital materials (technology platforms, email, collaborative virtual portfolios, etc.) (C1)
	Use of analogue media	Printed materials (books, documents, etc.) (C2)
Availability of materials	Moments to share the material with learners	At the beginning of the subject (D1) During the subject, at the beginning of the subject (D2) During the subject, at the end of the subject (D3)

Results

The results focus on the use that faculty members make of the various technological and conventional resources used in their teaching practice. They also address the main reasons and educational purposes that justify the inclusion of these resources in their teaching activities and their impact on student's learning. The means by which the materials were made available to students is also discussed. Finally, a description is given of when the participants considered it appropriate to make the resources and materials available to students.

Diversity of technological and conventional resources for learning and participation

Most of the participants in this study used a wide variety of resources in their classes. The diversity ranged from the most conventional to the most innovative resources (blackboards, printed books, audiovisual materials, texts, educational computer applications, etc.).

> *Audiovisual material, videos, blackboard... Although when I have someone like Maria in class, I try not to use it, or to use it occasionally without it being a difficulty for her... texts as well, textbooks in some subjects (P17).*

In addition, all faculty members, except for six of them, used various analogue and digital media in their teaching practice. These media were mainly PowerPoint presentations, videos, images, texts (digital or printed) and even the traditional blackboard.

> *I use a lot of media, because I believe that a picture is worth a thousand words. I use the virtual learning platform a lot, I use digital self-assessment systems with images and I would like to have these media in the classroom as well (P46).*

For the participants it was essential to make use of different technological resources for learning. Most of them explained that the diversity of technological resources allowed them to facilitate accessibility to learning content and thus to encourage student participation, adjusting to the needs of the students. They explained that students belonged to the "Net Generation" and, therefore, demanded active and participative classes, favouring learning more in line with the digital reality in which they live.

> *I use different technological resources due to the diversity of the students and because they can be more effective for them, right? The digital aspect is very effective for them because they have it... It is, let's say, the digital generation. And we are, in fact, in the digital age..., and so that's what we feel more familiar with (P10).*

Another argument was related to faculty and student's motivation. The participants felt that it did not benefit learning if class sessions were always approached in the same way. On the contrary, the use of different resources, both technological and conventional, in addition to facilitating accessibility, promoted motivation and attention.

A picture is sometimes worth a thousand words. It's easier to understand something when they see it, that's why we use videos. And then, when they practice it, that's why we use role-playing and texts. The slides also help to fix their attention and help them understand what we are saying (P51).

In addition, the faculty made use of this variety of resources because they felt that they promoted meaningful learning and contributed to the achievement of the subject objectives, as these could not be achieved with a single resource. Moreover, they thought that they could not teach without resources.

Because if I don't use all these resources, my subject cannot be taught. If we are talking about anatomy and the bone has to be imagined, well... I can't... And nowadays, we have a lot of resources (P40).

Another motivation for making use of various resources was related to learning styles. They explained that students learn differently. When they had different resources and approached the content through these resources, it made it easier to adjust to students' learning styles.

I use different resources because I understand that we don't all learn in the same way. They have the right to choose how they want to learn. I am not the protagonist of this, I am the tool, I am a wrench, and whoever wants to, uses it (P110).

Therefore, under this pedagogical conception, they understood that each student could obtain information through the resource with which he/she felt most comfortable and which was most appropriate at any given moment.

Because I believe that the more senses we bring into play, the easier it is to get information. So, for example, they have the auditory and visual material, which, in many cases, as the PowerPoint presentation can be voiced, they have it (P88).

On the other hand, they explained that technological resources allowed students to develop technological competence. This meant that students could learn how these resources work, favouring their use in future work contexts.

I think it helps students to have that knowledge and use it in the future (P24).

Finally, although only a minority of participants commented on it, the use of this variety of technological resources allowed the content of the subjects to be accessible. This implied that, when selecting the resources to be used in the classroom, faculty members had to take into account that, in addition to being available and accessible, these resources should be useful and practicable for everyone.

I try to work with different materials and in different ways to cater for the most diverse situations I have in my classroom. I try to make sure that the videos I show in class are subtitled, I work with other types of audiovisual resources and if I have any need I also put subtitles and audio in voice, I put it in large letters so

that people with disabilities.... In other words, I try to ensure that the material is adapted to the multiple realities that may exist in my classroom (P91).

Accessibility through different media

Regarding the means by which the participants provided materials to their students, the analysis revealed that the main means used was the technological platform or learning management system (LMS). In fact, in this study, 97 faculty members agreed that they had used this virtual learning environment because it is a well-known and shared tool, which allows educators, among other reasons, to make digital materials more easily and quickly available than printed materials.

I include the materials on the platform because it is a common way where everybody uploads and where it is easier to download. Nowadays, the files are too big to send by email and we don't use the copy shop anymore because of the ecological issue. It's easier (P3).

However, it was clear to these faculty members that they could not send the materials they used in their subjects by only one way. Therefore, they used all digital and analogue media available to them, from the technological platform to email and even printed documents in the copy shop.

I include it in the platform because everyone has access to the platform, so they have it at home whenever they want (P37).

In addition, some participants pointed out that, when they had students with disabilities in their subjects, and they required the material to be made available to them in different ways, they adapted it to their needs.

[...] And then, if someone asks me for it by email, for example, the visually impaired student asked me for it by email and she asked me for... I think the PowerPoint, not the PDF. So, I would send her the PowerPoint to an email that she had given me (P38).

Material available at different moments

The availability of materials is a determining factor in the learning process. Including course materials before, during, or after the sessions can facilitate or hinder the learning process for students in general, and for students with disabilities in particular.

Some faculty members included material from the beginning of the course because they felt that this allowed students to organise themselves better and to review in advance the content of the topics to be covered in the lessons.

Normally, most of the materials are there before the course starts. Sometimes I post some things as I go along, i.e., if I find a news item that has just been published, I post it at that moment (P43).

However, most of the participants provided the learning content in a progressive manner, as they felt that presenting the information in its entirety overwhelmed the students. This approach allowed the faculty members to make modifications to the materials as the course progressed and encouraged students to attend the classroom in person. In some cases, the publication of study materials was days or even weeks before the subject started. Some faculty members, for example, justified this on the grounds of being able to share them with relevant modifications once part of the subject had been updated and covered in the class, or to promote attention in class. Other participants, on the same day, published their presentations and, later on, other complementary information.

> *A little bit in advance of the classes, but a little bit, because if we include all the material at the beginning of the course, first of all, there are some students who, when they see the material there, get overwhelmed and anxious, and, on the other hand, throughout the course, there may be different little things that need to be changed (P37).*

Along these lines, there were faculty members who, with prior warning, chose not to distribute all the material in full as a strategy for students to attend classes in person and increase their attention in class.

> *[...] I don't give everything, there is always a slide that I never give, so that those students who don't come to class can come, because if they don't, they don't have all the material for the exam. Right now they don't know which slides they are going to have and which ones they are not going to have. Obviously, the important ones they do have, but there are some that they don't (P7).*

Finally, there were those who included the study material at the end of the subject because they thought that this helped to encourage students' creativity, participation and reflection in the development of the classroom sessions.

> *So that they don't cling to my content and are creative, I upload them once they have already worked on them, so that they don't just cling to my content (P84).*

However, the availability of the materials did not always depend on the time in which the development of the content was scheduled. For other faculty members, the publication of the material depended on the purpose of the activities they proposed, differentiating between tasks to be carried out outside the classroom (offering the material in advance) and tasks to be carried out in the class (providing the material ipso facto).

> *It depends on how the materials are to be used. If it is to work at home, then before, if it is for class, then I make it available afterwards. I wait until it has been seen in class and then I upload it and make it available to them. If they are things they need to be familiar with before the course starts, then I provide them before the course starts (P17).*

Discussion

In recent years, Spanish universities have been immersed in a scenario of digital transformation. This movement has meant that teaching staff have become a key element in inclusion processes (Carballo et al., 2021), acting as mediators in the teaching-learning process. National and international reports show that Spanish universities have a high degree of implementation of educational technologies (European Commission, 2018; FOLTE, 2018), which allows teaching to be adapted to this new digital scenario, including more active and participatory methodologies and the combined use of traditional and digital resources (Aiello & Willem, 2004). The results of our study show that faculty members make use of various resources, both traditional and digital, to develop their teaching. Blended learning in traditional classroom environments is a model widely used by the participants in this study.

Among the resources most used by the participating faculty, videos, slide presentations, images and digital texts stand out, coinciding with the findings of Dinmore (2019), Edyburn (2011), and Ferreira et al. (2018). Among the reasons why they make use of a variety of resources for their teaching, the faculty members aim to increase student's participation, motivation, and attention, develop technological competence in the classroom, adjust to the learning styles and needs of their students, enable students to obtain information from the resource that is most convenient for them, promote more meaningful learning for students; and increase the accessibility of their subjects. This shows the special sensitivity of the faculty members to adapt their teaching to all students. Their arguments coincide with many of the benefits pointed out by Aquino and BuShell (2020), Balakrishnan and Lay (2016), and Young and Nichols (2017).

Regarding the availability of learning materials and resources, virtual learning platforms are the primary means through which the participants make materials available to learners. As Chowdhury (2020) points out, the use of virtual learning platforms as a virtual repository is generally common and facilitates access to content as it enables educators to incorporate files of various kinds that can be accessed by students using any electronic device and from any location. In addition, faculty members used other means to make their subject material available to students, including the use of e-mail, the creation of shared digital folders or the delivery of material on paper through a copy shop, which were other options used by the participants of this study. All of this is aimed at offering more supports to their students and providing multiple forms of expression, which allows students to meet their objectives (CAST, 2018).

Regarding the most appropriate time to make the material available to students, the opinions of the study participants on this issue are heterogeneous. Most of them made the material available to students progressively, simultaneously with the course of the subject. However, for the majority of the faculty members, the publication of the materials was conducted in the days or weeks prior to the start of each of the topics or blocks

of content, which allowed students to have the material available somewhat in advance. This would benefit learners with disabilities in particular, since, as Díez et al. (2008) and Cotán (2014) argue, providing the material in advance contributes to favouring accessibility to the content. Other faculty members provided the material before the start of the subject, which would also be positive for learners with disabilities, or at the end of the different topics or blocks of content, as this encourages learners' creativity, participation, and reflection during the development of the classroom sessions. The latter issue can make it difficult for learners with disabilities to follow the sessions, who sometimes need the material in advance to modify and personalise it, adapting it to their needs, and considering multiple forms of representation as one of the UDL principles suggests (CAST, 2018).

It is necessary to point out that the term accessibility is very broad. This paper addresses issues related to the accessibility of technological resources. Learners can access materials through different media, at any time and in any place, as Dinmore (2019) states. However, regarding the accessibility of the material itself (subtitled videos, texts in various formats, audio descriptions or easy-to-read slides with specific applications), some participants verbalised that they ensured the accessibility of these materials or resources, although not all of them detailed the level of accessibility of these materials or resources. This issue is essential because, as Youngblood et al. (2017) point out, for the effective inclusion of technologies in the classroom, the accessibility of content must be reviewed. To this end, continuous training in technology and UDL is necessary to continue moving toward more inclusive universities that offer the same opportunities to all students (Carballo et al., 2019; Perera et al., 2021).

Limitations and future research

One of the limitations of this work is related to the methodological design; specifically, it was the conception of the study participants as a single group, without differentiating them by areas of knowledge, which could have enriched the work, making it possible to find out whether there are differences between the perspectives of faculty belonging to different areas of knowledge. In future research, it would be advisable to take this limitation into account in order to determine whether there are differences between faculty members of different disciplines.

Given the importance of the accessibility of course materials, another limitation of the study is related to the actions taken by the faculty members to make the materials accessible, which was superficially addressed in this study. In future research, it would be convenient to delve into how accessible the materials are made by faculty members to students. Likewise, and in relation to the previous idea, it would be important to explore the training that faculty members have in UDL, which was a fundamental question in this study.

Conclusions

By way of summary, and to emphasise the main findings of this study, it can be concluded that the faculty members make great efforts to make the teaching-learning process accessible to university students, and especially to students with disabilities. Faculty members are using different technological media and materials to promote new spaces and tools for student learning and participation. Therefore, in this study, technological resources are at the service of inclusion and are favouring the accessibility of learning content.

These faculty members use a multitude of materials to offer the content of their subjects to students. This material is available in both digital and conventional formats. In addition, they use the virtual learning platform as the main means of providing their material to students. Finally, they are faculty members who facilitate the content of their subjects to students at the beginning of the course or on the day prior to carrying out each block of content. All these issues are fundamental to ensure inclusive and quality learning for all as they relate to the principles of UDL.

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Dėstytojų, vykdančių inkliuzinę praktiką, naudojant IKT, nuomonių analizė

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Santrauka

Vis labiau populiarėjančios švietimo technologijos, kaip papildoma tiesioginio mokymo priemonė, ir didėjantis neįgalių studentų skaičius universitetų auditorijose lemia mokymo ir mokymosi procesų pokyčius. Šiame straipsnyje analizuojami dešimties Ispanijos universitetų 119 dėstytojų, kurie savo mokyme taiko inkliuzinę praktiką, naudodami informacines ir komunikacines technologijas, pasisakymai. Tyrimas grindžiamas kokybinės paradigmos prielaidomis, atliekant pusiau struktūruotus individualius interviu. Rezultatai rodo, kad vaizdo įrašai, skaidrių prezentacijos, vaizdai ir skaitmeniniai tekstai yra dažniausiai tyrimo dalyvių naudojama mokymo medžiaga. Pagrindinė priemonė, kurioje dėstytojai pateikia medžiagą studentams, yra virtualioji platforma. Dauguma dėstytojų joje pateikia kursų medžiagą studentams prieš dėstydami mokymo turinį. Išvados rodo, kad dėstytojai deda daug pastangų, kad mokymo ir mokymosi procesas būtų prieinamas universiteto studentams, ypač studentams su negalia. Dėstytojai naudoja įvairias technologines priemones ir medžiagą, kad sukurtų naujas erdves studentų mokymuisi ir dalyvavimui, todėl technologinės priemonės tarnauja inkliuzijai ir sudaro palankias sąlygas mokymosi turinio prieinamumui.

Esminiai žodžiai: *mišrus mokymasis, prieinamumas, negalia, aukštasis mokslas, IKT, inkliuzinis ugdymas, dėstytojai.*