

TEACHING ENGLISH TO ADULTS WITH DISABILITIES: A DIGITAL SOLUTION THROUGH EN-ABILITIES

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Abstract

This article analyzes the current situation of English language teaching (more particularly TESOL) to adults with Special Educational Needs (hereinafter SEN) in Spain from a double perspective. On the one hand, a qualitative study on teaching experiences with adult students with some type of disability is presented. The conclusions of this study shed light on the difficulties detected and the strategies implemented for teaching English. On the other hand, the resources most commonly used in the field of virtual teaching to increase and improve the skills of these students are reviewed. Finally, the authors describe an on-going European project that implements a Virtual Learning Environment (hereinafter VLE) where the principles of Universal Design are incorporated to facilitate the formative access to learning English as a second language to adult students with SEN.

Keywords: TESOL; ICT; disability; Universal design; EFL learners

1. Introduction

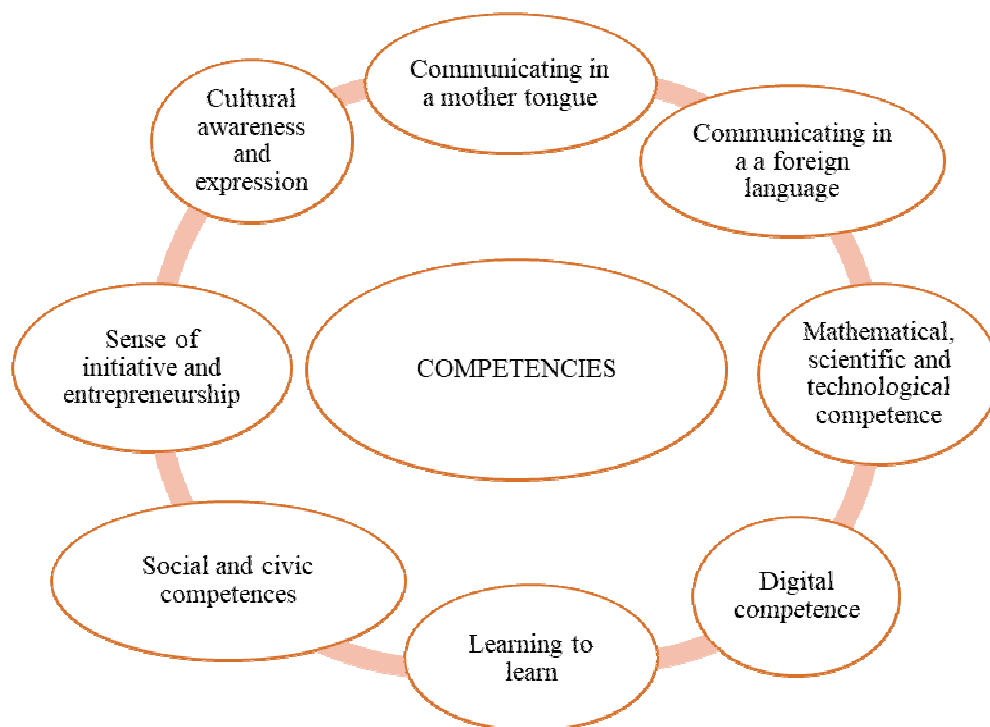
The educational integration of students with Special Educational Needs (hereinafter SEN) in the Spanish education system is generally accepted among students and administrative staff, especially at the levels of early childhood and primary education,

although it is more problematic at the secondary level, especially in terms of pedagogical application (Marchesi, Martín, Echeita and Pérez, 2005, Cardona, 2001). There are generic guidelines for the adaptation of resources and content aimed at people with disabilities, such as the ones designed by the Spanish Support Network for Persons with Disabilities at University (SAPDU) (Rodríguez Infante and Arroyo Panadero, 2017), the Accessible Educational Technologies Resource Guide (CERMI, 2015) and the Project on Accessibility and Adaptation for All in Higher Education (A2UN @, 2009-2012)¹. Recently, Information and Communication Technologies (hereinafter ICT) have been incorporated as an essential resource that can facilitate universal access to training. They are considered a valuable tool to enhance the independence and education of people with SEN and to increase their participation and inclusion in society (Aguilar-Tamayo, 2004, Cullen & Alber-Morgan, 2015, Gutiérrez-Recacha & Martorell-Cafranga, 2011, Rodríguez & García, 2010, Toledo & Llorente, 2016).

According to the current legislation, the Recommendation of the European Parliament and of the Council of 18 December 2006 (2006/962 / EC), and afterwards, the Recommendation of the European Council of 22 May 2018 (2018/C 189/01), lay down the so-called European Framework of Key Competencies for Lifelong Learning. These are eight competencies that are defined as a combination of knowledge, skills and attitudes appropriate to the context that all people need for personal development, community participation, social inclusion and employment. The last Recommendation highlights permanent, inclusive and quality education and learning to ensure opportunities to all students independently of their characteristics (Recommendation of the European of the Council of 22 May 2018, p. 189/4) (See Figure 1).

¹ This project was created by the Spanish National Distance Education University and the University of Girona, with the collaboration of the Polytechnic University of Madrid, to create a general framework of ICT to support the development of lifelong learning services required to attend the needs for adaptation and accessibility for all in Higher Education. For more information, see Fabregat et al. (2010).

Figure 1. Key competencies for lifelong learning adapted according to the Framework of the European Union of Key Competencies for Lifelong Learning (2006, 2018).



The learning of a foreign language is essential to improve proficiency linguistic aspects, participation and social integration, employability or mediation, as well as intercultural understanding. As reflected in the Framework of the European Union of Key Competencies for Lifelong Learning (2006, 2018) and stated by other authors (Castro, 2012), one of the main barriers to the social integration of people with some type of disability is the lack of competence in foreign languages. Thus, as Leahy and Dolan (2010) and Fernández Portero (2018) claim, social exclusion can be reduced or eliminated if a proper use of new technologies, and especially of resources that are based on universal design, is extended. In addition, Computer-assisted Language Learning (CALL), originally defined by Levy (1997), can now be used with optimal success results (Powers, 2019).

In particular, when it comes to Teaching English to Speakers of Other Languages (hereinafter TESOL), the three principles of universal design become necessary to ensure accessibility and promote motivation which decreases anxiety during the learning period (Sigona & Barros del Río, 2016) and increases the possibilities of success for school, social and job integration (Rose & Meyer, 2002). The first principle provides multiple means of engagement and some of its strategies are related to individual choice and autonomy, relevance, value and authenticity or self-assessment

development. The second principle provides multiple means of representation (options for perception, language and comprehension) and some of its strategies offer ways to customize the way information is displayed or alternatives for auditory and visual information. The third principle provides options for response and navigation so as to allow users to have access to multiple media for communication and tools to manage information and resources.

Considering the aforementioned conditions, this article analyzes the current situation of teaching English to adults with SEN in Spain based on a qualitative study of teaching experiences with adult students with some type of disability. The resources that are most commonly used in the field of virtual teaching are also reviewed to increase and improve the skills of these students. The conclusions of this study shed light on the difficulties detected and the strategies implemented for teaching English. Finally, the authors describe an on-going European project that implements a Virtual Learning Environment (hereinafter VLE) incorporating the principles of Universal Design to facilitate the formative access to learning English as a second language to adult students with SEN.

2. Analysis of the difficulties and needs of teachers of English with adult students with SEN

In order to better investigate the current situation of TESOL in relation with adults with disabilities in Spain, a survey was conducted with a representative sample of teachers at the national level (see Appendix). The aim of the survey was to explore such issues as attitudes towards disabilities, beliefs about the importance of teaching a foreign language to this type of students, and the strategies chosen to adapt the contents to the needs of these students. At the same time, it was intended to provide a clear vision of the knowledge the teaching staff has about ICT and VLE and the use they made of new technologies in teaching English.

The structure of the survey was divided into three sections: sociodemographic information, teaching experience with students with disabilities and, finally, knowledge levels of ICT and its use and implementation in the classroom. For the collection of information, the survey was sent to 31 English Philology departments of Spanish universities and 14 Official Language Schools.

The survey had 54 participants aged between 29 and 62 ($M=44.70$, $SD=8.83$). Most of the participants were female (70%) and had been working at the tertiary level

for more than 15 years, with a C2 level of English according to the Common European Framework of Reference (CEFR) and whose teaching methodology was applied among students who were between 18 and 49 years old ($M=30.38$, $SD=9.30$). In the next section the results of the survey will be given.

2.1. Experience, attitudes and strategies used to teach English as a foreign language to students with disabilities

Table 1 shows that 35 teachers mentioned having experience, at least occasionally, with students with some type of disability. This means a 65% of teachers acknowledging their awareness of teaching SEN students.

Table 1. Do you teach English to people with special educational needs?

Item		Yes	No
Do you teach English to people with special educational needs?	N	35	19
	%	65	35

Table 2 shows the most common disability in the classroom was the auditory one (20 teachers said to have worked occasionally with these students). The least recurrent disabilities were the autism spectrum disorder (47 teachers responded that they never or rarely had taught English to this group), intellectual disability (39 of them replied that they never or rarely had taught it to this group) and visual impairment (41 of them answer that they never or rarely had taught it). Following these statements, the most common curricular adaptations were aimed at students with sensory disabilities. However, some general strategies aimed at acquiring knowledge such as a more frequent use of dynamic games or manipulative activities were also mentioned. This was the case of memory games with cards to develop vocabulary or activities to listen to music and sing songs. Another strategy is to invest more time to adapt materials (e.g. typing notes and exercises in word format in the case of visually-impaired students so that ONCE, National Organization of the Blind in Spain, can translate them into Braille) and doing more tutorials with learners. Besides, in class SEN students are encouraged to work with somebody else so as to help each other. Moreover, modified evaluation criteria, including extra time granted during exam sessions, flexibility in task delivery and/or the application of oral evaluation are other strategies useful when teaching these students.

Table 2. How often do you teach English to persons with some special education needs?

Item		Score					Mean
		Users(n=54)					
		Never	Rarely	Occasionally	Frequently	Very frequently	
How often do you teach English to people with visual impairment?	N	25	16	11	2		0.81
	%	46	30	20	4		
How often do you teach English to people with hearing impairment?	N	16	17	20	1		1.11
	%	30	31	37	2		
How often do you teach English to people with intellectual disability?	N	29	10	12	2	1	0.81
	%	54	18	22	4	2	
How often do you teach English to people with autism?	N	35	12	5	2		0.52
	%	65	22	9	4		
How often do you teach English to people with motor disorder?	N	19	20	13	1	1	0.98
	%	35	37	24	2	2	
How often do you teach English to people with dyslexia?	N	19	19	12	3	1	1.04
	%	35	35	22	7	2	
How often do you teach English to people with communication disorder?	N	23	18	10	2	1	0.89
	%	43	33	18	4	2	

In general, the study highlights teachers' positive attitudes towards students with SEN and shows their awareness of the importance and need for this group to learn a foreign language. However, certain doubts are also raised when dealing with people with severe intellectual disabilities, mental illness or brain damage. Table 3 shows that only 16 of the people that were surveyed completely agreed to teach English to people with severe intellectual disability, 23 to those with mental illness, and 20 to those with brain damage. These results are very different if compared to the range of 51 teachers who had no doubt about the usefulness of English among people with visual impairment, 44 of whom had auditory and 52 physical disabilities. This type of responses are in line with numerous research studies indicating that students with severe disabilities are usually excluded from training programs in a foreign language (Harry et al., 1995; Zetlin, Beltran, Salcido, Gonzalez & Reyes, 2011; Mueller, Singer & Carranza, 2006).

The attitudes inferred from the survey also show similarities with the results obtained in various studies which point to a lack of teacher training on how to teach the same content through different channels based on the principles of universal design and respecting individual capabilities (Mueller et al., 2006; Shyyan, Thurlow & Liu, 2008; Zetlin et al., 2011). For this reason, it is important to work in teacher training as recommended by Castro (2012). This author states that it is necessary for the teaching team to be aware of support technologies and know how to use them adequately so that students with functional, sensory or intellectual problems can also achieve curricular objectives. Likewise, Rogers-Adkinson, Ochoa and Delgado (2003) insist on the need for these students to have the necessary support to mitigate the difficulties they face and achieve social and behavioral expectations.

As our study shows, more than half of the participating teachers admitted having had some experience in the English classroom with students with disabilities, although they were not clear about the usefulness of teaching English to students with severe disabilities and with great impact on intellectual functioning. The generalized positive attitude they showed towards methodological adaptation should be highlighted, regardless of physical or sensory disabilities. However, this determination decreases in the case of severe intellectual disability, mental illness and brain damage, which directly affect the learning of a foreign language.

Table 3. What extent you agree with the idea that students with the following disabilities should learn English as a foreign language? (Continue)

Type of disability	Score					Mean
	Users (n=54)					
	Completely Disagree	Disagree	Neutral	Agree	Completely Agree	
Delayed speech and language development	N	7	11	10	26	4.02
	%	13	20	19	48	
Specific learning disabilities	N	6	9	9	30	4.17
	%	11	17	17	55	
Mild intellectual disability	N	3	10	16	25	4.17
	%	5	18	30	46	
More severe forms of intellectual disability	N	7	6	18	16	3.35
	%	13	11	33	30	
Attention deficit hyperactivity disorder (ADHD)	N	1	1	15	8	4.17
	%	1	1	30	15	
Visual impairment	N		3	9	42	4.72
	%		6	17	78	

Table 3. What extent you agree with the idea that students with the following disabilities should learn English as a foreign language?

Type of disability	Score					Mean	
	Users (n=54)						
	Completely Disagree	Disagree	Neutral	Agree	Completely Agree		
Hearing impairment	N	3	7	11	33	4.37	
	%	6	13	20	61		
Physical disabilities	N		2	3	49	4.87	
	%		4	5	91		
Mental illness	N	1	3	17	10	23	3.94
	%	2	6	32	12	42	
Behavioural disorders	N	3		13	12	26	4.07
	%	6		24	22	48	
Brain injury or neurological disorders	N	3	8	12	11	20	3.69
	%	6	15	22	20	37	
Autism spectrum disorder	N	2	4	12	9	27	4.02
	%	4	7	22	17	50	

2.2. Use of ICT in the classroom

Based on the conviction that the use of ICT in the classroom can contribute to the inclusion of students with disabilities and improve their learning process, it is necessary to highlight the use of technology in the classroom. Table 5 shows that the use of technology varies among teachers: 23 of respondents claim they use new technology in their classrooms between four and six hours a day, 18 teachers only use it between one and three hours and 9 of them between seven and nine hours, maybe they also work at home with ICT.

Table 5. Hours using technology each day

Hours	N	%
1-3 hours	18	33
4-6	23	43
7-9	9	17
More than 9 hours	4	7

Table 6 shows that 26 of the respondents declare that they know how to use it and even consider themselves expert users.

Table 6. How experienced are you in using virtual learning environment for teaching English?

Experience	N	%
No experience	5	9
Inexperienced	4	7
Neutral	19	35
Experienced	17	32
Very experienced	9	17

However, when asked about their experience using VLE (for example, Moodle, Duolingo or other similar platforms), despite showing positive attitudes towards its use, 49 of teachers acknowledged not knowing how to use it specifically with groups with SEN. Table 7 shows that more 90% of professionals need more training using VLE with students with special needs.

Table 7. Do you require more training in using VLE with students with SEN?

Item		Yes	No
Do you require more training in using VLE with students with SEN?	N	49	5
	%	91	9

In the light of these results, we deem it necessary to promote knowledge about VLEs to improve teachers' educational competences, since technologies should be aimed not only at students but also at teachers in order to improve dynamics in their classroom (Castro, 2012). This means that technology should be easy to use and allow them to interact with their peers. These needs are in line with those stated by Toledo (2008), according to whom every teacher should facilitate students' access to ICT through hardware and software devices, as ICT eases educational accessibility and accessibility to contents. According to Beacham and Rouse (2012) as well as Toledo and Llorente (2016), many teachers are not aware of the positive influence of ICT in inclusive education. Added to this, they affirm that most teachers have very low levels of training in relation to cognitive disabilities. Equally, Beaven et al. (2020), Flórez, Ramírez and Ramírez (2015), Luque-Parra and Luque-Rojas (2012) as well as Rodríguez (2012) emphasize the importance of using ICT to favor social inclusion, individualized learning, self-reflection and learner autonomy.

In summary, the group of informants recognized the importance of ICT in education, but they were not able to exploit all the functionalities in teaching English to adult students with SEN through VLE. Therefore, this situation requires greater theoretical and practical training both in the use of VLE and in the pedagogical guidelines needed to distinguish different learning styles and strategies for adapting content and teaching methods to SEN students.

3. SEN and virtual English teaching

When it comes to improving strategies that encourage and facilitate the acquisition of foreign language skills of people with SEN such as speech clarity, straightforward language, and repetition of instructions, it is necessary to review the resources most commonly used and the effects these produce. Most teachers deal with unidirectional physical, visual and auditory disabilities, given that they are the most common ones among the adult population, both at universities and other training centers. Virtual resources can be very effective thanks to their versatility, their transformability and the possibility of interrelating different contents (Rose & Meyer, 2002) facilitating literacy and foreign language improvement (Guan, 2015). Another significant peculiarity is the opportunity to explore the Multimodal or Multimodality Interaction, which implies a joint semiotic interaction (auditory, visual, tactile and gestural) from any place and at any time, using any device in an accessible way, thus facilitating interaction (Beaven et

al., 2010; Castro, 2012). In what follows, these resources are analyzed according to the specific group at which they are addressed.

3.1 Physical disability

People with physical disabilities may need physical support devices, such as wheelchairs, crutches, seat lifts, etc. Although this equipment does not interfere in the design and programming of the virtual teaching platform, it must be considered when establishing the period to carry out a specific task since, for example, a certain physical disability may require a longer period of time for the execution of activities.

Regarding the optimization of the digital platform, the challenge usually lies in facilitating access to established contents. There are different support devices that require adaptation or compatibility with the virtual platform to help improve learners' autonomy and motivation and, in turn, facilitate access to the digital platform. Among these, the following stand out: Camera Mouse², EyeWriter³, No'Keys or Click-N-Type⁴, Switch Scanning Methods⁵, Microsoft Accessibility Options tools such as StickyKeys⁶, MouseKeys⁷ or FilterKeys⁸) (Fernández Portero, 2018, p 260). For these and all the new devices that the market makes available to physically-challenged users, it will be necessary to constantly implement the relevant software adaptations in the virtual platform. An example is the PROJECT FRESSA 2015, coordinated by Jordi Lagares (CERMI, 2015), which attempts to facilitate learning and education in an accessible way through a set of applications related to voice control and computer access.

3.2 Visual disability

The most current project is Accessible Design for the Learning of Languages in the Network (ADOLL), coordinated by the University of Granada. This project consisted of

² This software allows people with reduced mobility to control the mouse with the movement of their head.

³ This software allows people to write with their eyes. This process is carried out through glasses that include a camera that captures the movements of the iris and the pupil.

⁴ The No-Keys software displays a keyboard on the screen of a computer so that users can write using a traditional mouse, a ball or other similar devices to point. It is normally used by people with reduced mobility or with language problems, such as children with autism.

⁵ These programs offer students with eye-hand coordination, fine motor skills or mobility problems the opportunity to write sentences through a system that scans the selected words in the desired order.

⁶ This tool allows people who have difficulty to press two or more keys simultaneously to access certain commands or actions through another shortcut or alternative key.

⁷ This option allows the use of a keyboard to move the cursor instead of using a mouse.

⁸ This Windows tool is designed for people with hand tremor so that they can type better by ignoring repeated pressings of the same key or command.

a multilingual application accessible to users with no sight or with severe visual impairment. The aim of the project was to allow these users to acquire basic foreign language skills. In the process of developing the application, the recommendations of the Web Content Accessibility Guidelines (WCAG 2.0) (World Wide Web Consortium 2008) were followed. This is the most important document of the Web Accessibility Initiative (WAI) because its main function is to guide the design of web pages to reduce possible barriers to training (CERMI, 2015). Four principles related to the components of the interface were mentioned (ADOLL, 2018; World Wide Web Consortium 2008) (See Table 8):

1. Information and user interface must be presentable to students in ways they can perceive. The following guidelines are described:
 - Provide alternative text for any non-text so that it can be changed into other forms that people need, such as large print, braille, speech, symbols or simpler language.
 - Provide alternatives for time-based media.
 - Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
 - Make it easier for users to see and hear content including separating foreground from background.
2. User interface components and navigation must be operable. The following guidelines are described:
 - Make all functionality available from a keyboard.
 - Provide users with enough time to read and use content.
 - Do not design content in a way that is known to cause seizures or physical reactions.
 - Provide ways to help users navigate, find content and determine where they are.
3. Information and the operation of the user interface must be understandable. The following guidelines are described:
 - Make text content readable and understandable.
 - Make web pages appear and operate in predictable ways.
 - Help users avoid and correct mistakes.
4. Content must be robust enough so that it can be interpreted by a wide variety of user agents, including assistive technologies. It is necessary to maximize compatibility with current and future user agents, including assistive technologies.

Table 8. Principles and guidelines recommended by the Web Content Accessibility Guidelines (WCAG 2.0) (World Wide Web Consortium 2008)

PRINCIPLE	GUIDELINES
1. PERCEIVABLE	1.1. Alternative text
	1.2. Multimedia content dependent on time
	1.3. Adaptable
	1.4. Distinguishable
2. OPERABLE	2.1. Accessible keyboard
	2.2. Enough time
	2.3. Epileptic attacks
	2.4. Navigation
3. UNDERSTANDABLE	3.1. Readable
	3.2. Foreseeable
	3.3. Assistance to data entry
4. ROBUST	4.1. Compatible

Other projects worth mentioning are the Research, Development and Application Center for the Blind (CIDAT) (CERMI, 2015), and the Educational Resources Center (CRE). Both belong to ONCE (National Organization of the Blind in Spain) and can offer guidelines to improve accessibility.

3.3. Hearing impairment

In relation to the studies on language teaching for adult students with hearing disabilities, the one developed by Escabias and Ordoñez (2015) stands out because it highlights the need to develop English teaching materials that are inclusive for this category of disabled students. Domagała-Zyśk (2010) and Marlene (2016) criticize the idea of exempting this group from studying foreign languages in schools and universities, since this knowledge offers them the opportunity to learn more about the world around them, participate in society, get a full education and find a good job.

In relation to the methodological approaches adopted for the teaching of this group, Escabias and Ordoñez (2015) recommend multimodal teaching, in which verbal and non-verbal communication are considered to generate and transmit meaning together with the use of presentations with more explicit grammatical elements and vocabulary cards with images. The result was successful and future challenges were proposed to adapt classes—and official examinations of the Association of Language Centers in Higher Education (ACLES).

In 2016, a conference on the intelligibility of speech in a foreign language for people with hearing disabilities was held at the State Reference Center for Personal Autonomy and Technical Assistance (CEPAT) in Madrid (Spain). This conference

facilitated that this group could improve their understanding of English, its implications at the socio-cultural level or access to training throughout life.

These studies focus on the adaptation of materials for face-to-face classes but not for online learning. This situation, which has been developed in other countries such as Poland (Domagała-Zyśk, 2010), is still a pending issue in the Spanish context due to national language policies which reaffirm the need to implement the use of accessible VLE for the learning of a foreign language among the adult population with SEN.

4. Looking forward: the EN-ABILITIES project

In the recent years, there has been an emphasis on Spanish teachers' constant concern about the evident lack of resources to help people with SEN in their learning processes. To solve this situation, the European project EN-ABILITIES (enabling inclusive education through technology) proposes a comprehensive tool based on the principles of Universal Design. In line with the objectives and challenges of the ERASMUS+ Program, EN-ABILITIES promotes the equality and inclusion of adults with SEN with the goal of developing tools to promote autonomous language learning in formal and non-formal educational environments, implementing a VLE in accordance with the guidelines of the World Wide Web Consortium (W3C).

EN-ABILITIES is created with the main objective of developing an accessible VLE according to the comments of W3C and the principles of Universal Design. Hence, specific objectives are to improve and increase adapted learning opportunities to individual support needs, and to increase linguistic competence, employability, citizen participation, mobility and social inclusion at a European level. Currently, there is no online tool to learn English that complies with the main European guidelines in terms of accessibility and design for all. The implementation of the innovative methodology that supports the VLE provides personalized routes to all students and a compilation of virtual learning resources. It is not only intended for adult students who want or need to improve their language skills, but also to have an important impact on teachers and software programmers to create and adapt accessible resources for language learning.

Considering that the target group usually achieves levels A1, A2 and B1 (according to the Common European Framework of Reference for Languages, CEFR), a multi-tiered online course has been created. Each level includes ten lessons with ten units where users can practice their grammar, vocabulary and listening skills. There are eight exercises per each unit, which makes a total of 80 exercises per level. The type of

activities created also fits the needs of SEN students as they range from drag and drop and drop-down kind, through multiple choice to matching questions. All contents are presented with alternative texts, images, videos and audios to ensure accessibility to all learners. Finally, and to ensure accessibility, the platform is free for all users to facilitate social inclusion. This goes in line with directive (EU) 2016/2102 of the European Parliament and Council, of October 26, 2016 which aims to make websites and applications for mobile devices of public bodies more accessible. In this sense, the tools provided by the EN-ABILITIES project are expected to help public and private schools to adapt their English courses online in accordance with this EU requirement based on Universal Design.

In short, EN-ABILITIES deploys a significant, sequenced and autonomous learning process adapted to each student. The project seeks to improve language and communication skills among students with SEN and, consequently, seeks to expand their opportunities for employability, their participation in society, their mobility and their social inclusion.

5. Conclusions

It is generally acknowledged that language learning offers an opportunity to improve social relations and opens the door to better working conditions for all people. However, people with disabilities or learning difficulties are often excluded from language education in spite of the numerous documents that address the need to improve public policies in relation to diversity, educational inclusion and real equality in society.

The educational integration of students with SEN in the Spanish educational system is generally welcomed by society. Furthermore, Spanish legislation explicitly recognizes and defends their rights, emphasizing that all people, including students with SEN, have the right to acquire a number of competencies for lifelong learning. This article focused on two competencies that are important to personal development: linguistic competence and digital competence.

As the teachers' perception of their teaching practice with adult students with SEN collected in this research demonstrate, most of them do not show a negative attitude; however, their level of interest varies depending on the type of disability. Naturally, people with disabilities need extra support in their learning process. In fact, learners with SEN suffer a triple discrimination due to different learning styles, lack of

expertise in foreign language and digital illiteracy. The more complex the support needed, the fewer the opportunities this group has to advance in their learning process.

As inferred from a survey tailored to analyze the difficulties and needs of teachers of English with adult students with SEN, they very frequently do not know how to adapt the contents of the curriculum appropriately and lack knowledge of and practice in the use of the new technologies for teaching purposes with adult students with SEN. They generally agree that VLE can promote self-directed learning, but they do not know how use it for this specific purpose. Added to this, the existing resources to teach English to people with sensory or physical disabilities, especially online ones, indicate lack of adaptation to the abilities of each student, making it difficult for this type of students to learn in a significant way.

Hence, EN-ABILITIES offers support to people with disabilities who want to learn or improve their English. The platform is compatible with support devices such as special keyboards and mice, Head Wands, and Switches. Also, students with hearing or visual impairment, communication disorders, intellectual disabilities, behavioral or neurological disorders can benefit from the spell checker button while writing in a plain text form, the magnifiers button to increase or decrease the size of text, the font button for font and line spacing changes, and the text-to-speech button to have highlighted text read aloud. Furthermore, it is possible to change the background color of the platform to facilitate reading to learners with visual impairment.

All in all, the solution offered by EN-ABILITIES is an important innovation when it comes to facilitating the learning of English as a foreign language among users with disabilities through a VLE based on universal design and the parameters set by W3C. Its implementation, now in its final phase, will facilitate the learning of English to all people, especially those with SEN or learning difficulties. Added to that, the platform will facilitate the work of teachers and software programmers, reinforcing their strategies to create or adapt the existing curricula and make their contents accessible, versatile and transformable. It is our belief that EN-ABILITIES will contribute to true social inclusion for people with SEN.

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Appendix. Questionnaire for teachers of English

EN-ABILITIES

This questionnaire is anonymous. The obtained results will be used for the purpose of the project “Accessible Online environment for encouraging autonomous English language learning aimed at people with disabilities” (EN-ABILITIES). The questionnaire consists of three parts: Demographic Information Questionnaire, Questionnaire on using ICT, and Questionnaire on Support Needs.

DEMOGRAPHIC INFORMATION

What is your age? _____.

What is your gender?

Female

Male

I acquired formal education in TEFL during my:

Undergraduate studies

MA studies

PhD studies

Other: _____.

How long have you been teaching?

Less than 1 year

1-5 years

6-10 years

More than 15 years

I currently teach English to students who are (you can choose more than one answer):

Under 6 years of age

7-14 years of age

15-18 years of age

Adults over 18 years of age

I teach English at (you can choose more than one answer):

A university

A foreign language school

A regular school

A special school

Other: _____.

How often do you teach English to persons with some special education needs?

	Never	Rarely	Occasionally	Frequently	Very frequently
Visual impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hearing impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Autism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Motor disorder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dyslexia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication disorder (dysphasia, stuttering, articulation disorder)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If in the previous question you teach English to students with another type of disability that was not mentioned, please specify it here:

_____.

How do you adapt your teaching methods to students with special needs? Please list all instructional modifications that you make for these students:

_____.

On a scale from 1 (completely disagree) to 5 (completely agree), please indicate to what extent you agree with the idea that students with the following disabilities should learn English as a foreign language

	1	2	3	4	5
Students with a delayed speech and language development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with specific learning disabilities (e.g. students with specific difficulties in reading, writing, mathematics, ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with mild intellectual disability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with more severe forms of intellectual disability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with ADHD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with visual impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with hearing impairment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with physical disabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with mental disorders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with behavioral disorders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with brain injury/neurological disorders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Students with autism spectrum disorder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

USING ICT

How many hours a day do you use technology?

- Less than 1 hour
- 1-3 hours
- 4-6 hours
- 7-9 hours
- More than 9 hours

How tech-savvy would you describe yourself on a rating scale from 1 (I do not know how to use it) to 5 (I am very good at using it)?

	1	2	3	4	5
I do not know how to use it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How would you describe yourself in terms of using technology for learning and instruction?

- Innovator (techies, guaranteed to adopt technology as a pedagogical tool)
- Early adopter (visionaries, will adopt technology earlier than majority)
- Early majority (pragmatists, will adopt technology as soon as the majority of teachers do)
- Late majority (skeptical, reluctant to adopt technology)
- Laggard (unlikely to adopt technology as a pedagogical tool)

How experienced are you in using virtual learning environment for teaching English (e.g. Moodle, Duolingo, etc.)?

- No experience (I have never used it)
- Inexperienced (I rarely use it)
- Neutral (I occasionally use it)
- Experienced (I frequently use it)
- Very experienced (I use it very frequently)

On a scale from 1 (completely disagree) to 5 (completely agree), please indicate to what extent you agree or disagree with the following statements about using virtual environment in teaching English to students with special education needs:

	1	2	3	4	5
Using VLE enhances their learning and educational goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLE enables a teacher to meet the needs of individual students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLE distracts students from the content of the lesson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLE encourages autonomous language learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLE provides more job opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLE encourages social inclusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SUPPORT NEEDS

Do you require more training in:

	Yes	No
Using information and communication technologies	<input type="checkbox"/>	<input type="checkbox"/>
Using VLE	<input type="checkbox"/>	<input type="checkbox"/>
Adapting teaching methods to students with special needs	<input type="checkbox"/>	<input type="checkbox"/>
Learning styles of students with special needs	<input type="checkbox"/>	<input type="checkbox"/>

If you have any comments, please write them down in the space below:
