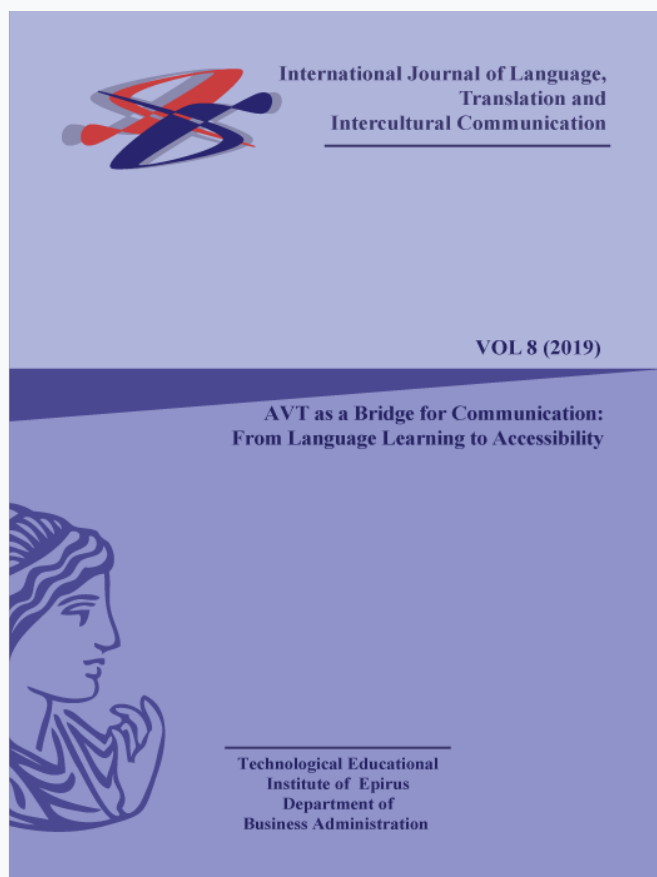


# International Journal of Language, Translation and Intercultural Communication

Vol 8 (2019)

AVT as a Bridge for Communication: From Language Learning to Accessibility



## Towards the Joint Study of Access Services and Universal Design for Learning

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doi: [10.12681/ijltic.20277](https://doi.org/10.12681/ijltic.20277)

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### To cite this article:

PATINIOTAKI, E. (2019). Towards the Joint Study of Access Services and Universal Design for Learning. *International Journal of Language, Translation and Intercultural Communication*, 8, 65–76. <https://doi.org/10.12681/ijltic.20277>

# Towards the Joint Study of Access Services and Universal Design for Learning

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## **Abstract**

*Access services have been studied from various perspectives as types of Audiovisual Translation, including their role as tools for education, and foreign language learning in particular, when audiovisual material is used for learning purposes. This paper aims to introduce a research path in audiovisual accessibility, from an Audiovisual Translation point of view, and accessible education by joining the dots between Access Services and Universal Design for Learning, with the aim to propose a holistic approach to accessible learning environments. Within this context, both access services and Universal Design for Learning are seen as both functional and pedagogical tools that can be used to achieve education which satisfies the needs of all learners. The current contribution takes Subtitling for the D/deaf and the hard-of-hearing as an example of access services whose educational value has been established and investigates its potential role in an educational environment that has been based on the principles of Universal Design for Learning.*

**Keywords:** UDL, universal design for learning, AVT, audiovisual translation, accessibility, access services, SDH, subtitling for the D/deaf and the hard-of-hearing

## **1 Access Services in AVT and SDH in Education**

‘Accessibility’ and ‘access services’ can be understood differently in various fields. Among others, accessibility is studied as a concept in architecture (Goldsmith, 1997; Imrie and Hall, 2001; Liu, 2018), public transport (Nilay Evcil, 2009; Soltani *et al.*, 2012), tourism (Buhalis *et al.*, 2012; Bowtell, 2015) and more. According to the online Cambridge Academic Content Dictionary (n.d.: online), accessibility is “the quality or characteristic of something that makes it possible to approach, enter, or use it”. Within Audiovisual Translation (AVT) and for the purposes of research conducted in the field, accessibility refers to access to audiovisual material, i.e. sensory access, and ‘access services’ as seen as the means to achieve it. Before looking into how access services can be incorporated in educational settings, it is important to determine their nature, and present the service used in this paper as an example of access services that can be linked to Universal Design for Learning (UDL), i.e. Subtitling for the D/deaf and the hard-of-hearing (SDH).

AVT “refers to the translation of products in which the verbal dimension is supplemented by elements in other media” (Díaz Cintas, 2005: 3). Being multisemiotic, the nature of audiovisual material is complex in terms of its characteristics. In fact, Chuang (2006: 374) identifies “five semiotic modes that are most frequently represented in the film text: the spoken mode, the written

mode, the mode of music, the mode of sound effects and the mode of moving images”. These are characteristics that can be found in most audiovisual material, either in combination or altogether, and they are the reason behind the rise of AVT as a field of studies, as all these elements make it a unique type of translation, the parameters of which require particular attention. There are many types of AVT, with their popularity varying based on the geographical area and the conditions and context of their provision. Subtitling and dubbing seem to be the most mainstream types of AVT in the industry, while SDH, audio description, revoicing, surtitling, and audio subtitling have also gained popularity in the field.

Neves (2005: 21) defines SDH as “any type of subtitling that has been consciously devised to cater for the needs of viewers who are Deaf or hard-of-hearing”, featuring audiovisual material which is either broadcasted on TV or watched at the cinema, in the theatre and in other forms of distribution. SDH is gradually being seen in different areas of application, such as video games and online learning platforms, often with an educational aim and addressing a wide audience. Based on Jakobson’s (1959) categorisation of interlingual, intralingual and intersemiotic translation, SDH can be both intralingual and interlingual. Intralingual SDH is performed within the same language – i.e. from Greek into Greek for the deaf and the hard-of-hearing – while interlingual SDH is the same process but takes place between one or more different languages – i.e. English into Greek for the deaf and the hard-of-hearing – which, however, is a rare practice. As Ivarsson and Carroll (1998) explain, SDH differs technically from typical interlingual subtitles mainly because it adheres to slightly different norms as far as the reading speed and the syntax are concerned, and it also includes additional information to identify speakers and convey music.

It cannot be denied that all AVT types facilitate access to audiovisual productions in the broader sense of the term. At the same time, they provide material for education, entertainment and information to audiences that would otherwise not be able to access them because they lack the knowledge of the foreign source language. Many of these modes also guarantee access to audiences with various types of sensory impairment, for example audio description for audiences of visual impairment of various degrees. In this sense, it cannot be denied that the media where such AVT services are most commonly used – i.e. TV, cinema, the Web, theatres, operas and exhibitions of any kind – are a source of education, entertainment and information for audiences who do not know any foreign languages, as well as for disabled people, the elderly, immigrants and people in the process of learning a language. In other words, AVT types like SDH may be designed to serve specific needs as access services serving accessibility purposes, but it can also be said that such AVT types can have more applications than the initially intended purpose, e.g. the elderly. At the same time, mainstream AVT types, like subtitling, serve a purpose of linguistic access mostly, but also allow access to material for disabled audiences when more specifically-designed services are not available, e.g. a video on the Web.

AVT has often been studied in terms of its potential in education and has mostly been related to foreign language learning. The value of access services, and SDH in particular, as an educational tool has already been researched from various angles, with an emphasis on its use for learning difficulties, for example see Zárte (2008; 2010), Lorenzo (2010) and Vanderplank (2016). Snyder (2013) discusses the importance of audio-described and captioned media in learning environments with the aim of raising literacy levels, while Zárte (2008; 2010) demonstrates the functionality of SDH for deaf children, since SDH is greatly valued as a service that advances learners’ reading and writing skills. At the same time – and from a more

sociological point of view – SDH bridges the gap between pre-lingual and post-lingual deafness, since it provides a solution for those whose mother tongue is sign language, as well as people who have lost their hearing at a later stage in their lives and in many cases prefer not to learn another language, but rather use written texts as a means of communication.

## 2 Universal Design for Learning and Inclusion

Another important notion that is closely related to accessibility is inclusion. Inclusion on equal terms is not only one of the main aims of accessibility, but it is also an important condition for its existence. Rather than providing means for specific purposes, it is based on the principle of transforming the existing restricted environments into open and inclusive places for all. This notion has been highly recognised and highlighted in the field of education, with the rise of ‘inclusive education’ in the sense of integration in the mainstream classroom (Tienda, 2013). Much like human rights and discrimination, inclusion is a concept of the past that is closely linked to race, gender and ethnicity, and prevents exclusion from social activities as a result of discrimination and social barriers. The relationship between inclusion and accessibility could be described as bidirectional. The need for inclusion came with the requirement for more accessible environments, which has raised the need for the provision of the right access services that would make this possible. In other words, inclusion can be achieved through the use of access services that ensure accessibility.

According to the United Nations’ Convention on the Rights of Persons with Disabilities of 2007, it is a fundamental right of disabled people to be included in society and education. The concept of inclusion draws on the social model of disability that was introduced by Oliver (1990). Inclusion is seen as the opposite of integration and segregation, in that it is based on the idea of equality, rather than differentiation based on types of impairment. As opposed to segregation that refers to placement in any form of segregated educational environment that could lead to a separate life, and integration that refers to the placement of disabled learners in mainstream education with a number of adaptations (The Alliance for Inclusive Education, 1994), “[i]nclusive education is part of a human rights approach to social relations and conditions. The intentions and values involved relate to a vision of the whole society of which education is a part” (Barton, 2003: 59).

Inclusion can be realised through a number of educational practices, among which are the application of effective construction, UDL, co-teaching, differentiated instruction, curricular accommodation, data-informed decision making and positive behaviour reports, which aim to provide educational outcomes for all, not just for disabled learners (Penner, 2013). The father of Universal Design (UD), Ronald Mace, came up with the term to refer to architecture and design that is free of barriers and obstacles. It was later adopted by the Disability Act 2005 to refer to:

1. The design and composition of an environment so that it may be accessed, understood and used
  - i. To the greatest possible extent
  - ii. In the most independent and natural manner possible
  - iii. In the widest possible range of situations
  - iv. Without the need for adaptation, modification, assistive devices or specialised solutions, by any persons of any age or size or having any

particular physical, sensory, mental health or intellectual ability or disability, and

2. Means, in relation to electronic systems, any electronics-based process of creating products, services or systems so that they may be used by any person.

(Centre for Excellence in Universal Design, 2014: online)

UD is based on seven core principles. The first is equitable use, meaning that the design is useful and marketable to people with diverse abilities and needs. The second is flexibility of use, and accommodates a wide range of individual preferences and abilities. The third is simple and intuitive use, i.e. a design that is understandable regardless of a person's experience, knowledge, language skills or level of concentration. According to the fourth principle, the design needs to provide perceptible information, by means of communicating necessary information efficiently, regardless of ambient conditions or sensory abilities. The fifth principle is tolerance of error and is based on the fact that the design should minimise the hazards and adverse consequences of accidental or unintended actions. The sixth is low physical cost, in the sense that the design can be used efficiently and comfortably and with a minimum of fatigue. Finally, the seventh is related to size and space for approach of use regardless of body size, posture or mobility.

UDL was incorporated in the Higher Education Act of 2008, and within this context, it is defined as:

[a] a scientifically valid framework for guiding educational practice that:

(A) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and

(B) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient.

(National Center on Universal Design for Learning, 2013: online)

Recognition, strategic and affective brain networks can constitute answers to the way in which the brain gathers facts and organises them based on the sensory input, plans and performs tasks, and becomes engaged and motivated. These are addressed by UDL by suggesting flexible goals, methods, materials, and assessments that empower educators to meet these varied needs. The main aim of UDL is not to address the average learner, but rather all learners through a flexible design that can be applied at the design stage of a course.

Based on the above, UDL can effectively accommodate disabled people in educational contexts, with accessible education as its aim. Due to the fact that students differ in terms of learning styles and needs, in the way that they can navigate a learning environment and express their knowledge, as well as in the stimuli that engage them in educational contexts, UDL is based on three main principles: a) the provision of multiple means of representation, b) the provision of multiple means of action and expression, and c) the provision of multiple means of engagement (CAST, 2015). UDL principles have been discussed by Coombs (2010), who suggests that a faculty and staff should normally make decisions only at a course content level. The author identified the potential of the principles and analysed a number of types of content that would fall

under the UDL reformation. Dell et. al (2015) also applied UDL to online courses by means of a simplified version of the guide, as provided by the University of Arkansas (n.d.) independently of accessibility standards. The simplified version of the guidelines that follows in Figure 1 as illustrated by CAST (2018) is not a complete representation of the original guidelines and is primarily based on perception.

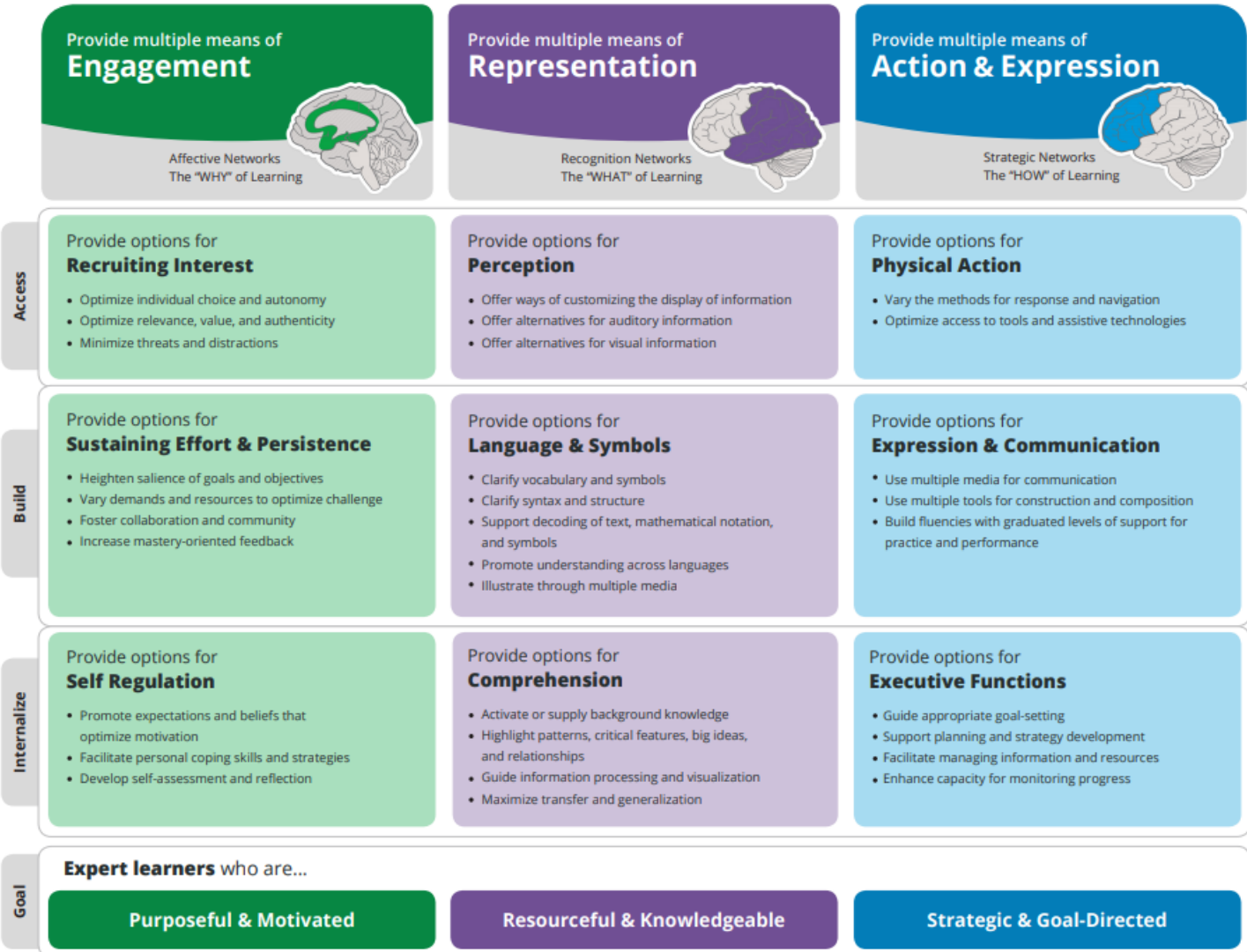


Figure 1: UDL guidelines (CAST, 2018)

### 3 Audiovisual Material and UDL

Audiovisual material can be considered a means of alternative representation, action, expression and engagement compared to the more traditional learning tools. The value of audiovisual material in education was recognised long before computers existed in class (Lestage, 1959). With the use of video recorders and TV sets, students could watch video tapes with educational content. Nowadays, audiovisual material has a dominant position in education. A major factor that has contributed to this is the availability of such material on the Web, as well as new technologies (e.g. laptops, smart devices, etc.) that have made the use and reproduction of relevant material much easier for educators. With the advent of podcasts, Webinars and video file hosting services online (e.g. TeacherTube), education has found an enormous resource both for students and teachers, whether this is used in class or not. Buckingham and Scanlon (2003) argue that the widely claimed value of multimedia as a learning resource is largely based on

interactivity, as it is assumed to motivate and engage the learner, to provide a user-centred mode of delivery and to encourage autonomy and emancipation. At the same time, according to the Corporation for Public Broadcasting research (2004), multimedia has been proven to reinforce reading and lecturing material, aid the development of a common knowledge base among students, enhance student comprehension and discussion, provide greater accommodation of diverse learning styles and promote teacher effectiveness.

As a term, ‘multimedia’ can carry many meanings and cover a variety of applications and technologies, which can be found in different contexts. As Coombs (2010: 101) explains, multimedia implies “the simultaneous use of more than one medium, such as audio, text, visuals including images and video”, which can have a crucial effect on sensory and other types of impairment. At the same time, for people with learning difficulties the original content might be confusing, yet when provided simultaneously in two different modes, it can help learners maintain attention and focus (Coombs, 2010). With regard to the usefulness of multimedia materials as educational tools on the Web, Bailey (2001) and Shank (2005) have warned of their inappropriate uses, which may turn them from tools that can effectively enhance learning and recollection into distracting elements in educational contexts. With this in mind, Bailey (2001) has provided guidelines for their effective use. These guidelines can be summarised as follows: a) reinforce images and videos with alternative text, b) reveal information gradually and systematically, c) avoid the use of animation or motion in the same context as other content. Coombs (2010) suggests three main principles with regard to the use of multimedia in online education: simplicity, brevity and relevance.

Based on the above, and considering multimedia as part of the curriculum, access to this type of material is necessary for all learners. This kind of access can be provided by means of access services, such as SDH, and that creates a bond between access services and UDL. However, this bond can be understood at three different levels if we also consider the process of accessing audiovisual material.

#### **4 The Triple Role of Access Services in Education**

When audiovisual material is used in an education context, access services can be used to make the material accessible to all learners, as an instructional tool, and as a form of assistive technology. In order to understand this triple role of access services, we will look into the example of SDH.

The first role of SDH as an access service is self-explanatory, since its characteristics indicate its purpose, i.e. to make audiovisual material accessible to D/deaf and/or hard-of-hearing learners, and by extension to all learners of a class who need SDH in order to understand the original material, which is otherwise not equally understood. The main ‘problem’ with multimedia in online education is the fact that it requires alternatives, i.e. subtitling, voice description, transcription. Yet, with the appropriate AVT mode, it can be enjoyed by all users. According to version 2.0 of the W3C guidelines (2008), developers need to provide alternatives for time-based media when they provide such material on their websites. These alternatives include equivalents for pre-recorded audio-only and video-only media, captions, conventional or extended/descriptive audio description for pre-recorded media, as well as live captions for live



audio content in synchronised media. With this step, SDH is establishing its role as an access service in online contexts. Whether provided online or not, audiovisual material can and should be accompanied by access services, to cater for the needs of all learners.

As mentioned in section 1, SDH has been studied as a useful tool in foreign language learning. In this respect, the preparation and the form of provision of SDH should take into account its specific aim, that of education. Looking at the example of the UK, which is one of the countries where SDH has developed the most, the guidelines provided for Television Access Services by Ofcom (2017) and for Online Subtitling by the BBC (2009) do not make reference to uses related to education, while the first only mentions the educational potential of sign language. Important choices in terms of the preparation of SDH include the length of the information that appears on screen, the duration of subtitles, the reading speed, the use of colours, positioning, labels and other conventions, and all these should be decided on the basis of the specific characteristics of learners and the purpose for which the material is used.

Apart from the role of SDH as a) an access service for audiovisual content used in education, and b) an instructional tool, with the advances of technology, a third role has come to the surface, and it is that of an assistive tool. Assistive Technology (AST) is “any item, piece of equipment, or system, whether acquired commercially, modified, or customised, that is commonly used to increase, maintain, or improve functional capabilities of individuals with disabilities” (United States Access Board, 2000: online). Although in the past ‘assistive technology’ was used to refer to any kind of technological invention that facilitated people for access purposes, nowadays it is almost directly linked to the use of computers and smart or portable devices. Very much like access services, AST serves more than the purposes it was initially intended to serve. Although screen readers, for example, were initially invented to support blind computer users, now they may also serve to improve reading skills (Stanberry and Raskind, 2009).

In both the case of access services and AST, we notice that their nature is not and should not be limited by definitions, as they constantly evolve and gradually become more flexible, more useful and more widely applied. In fact, Ravneberg and Söderstörn (2016) identify AST as a field that should be approached under Disability Studies and Society, Technology and Science Studies, since it is closely related to disabled people’s lives. Technological solutions like speech recognition software is commonly seen as assistive tools. However, if we consider that such a solution can be used as a first step towards faster subtitling of audiovisual content, whether in its conventional form or as SDH, AST can be considered part of AVT, as happens in the case of respeaking (Romero-Fresco, 2011). Similarly, AVT can be considered a type of AST, as happens in the case of audio description and narration when used on websites for navigation or for the description of visual elements. In this sense, the two fields supplement each other for the common goal of universal access to content. This relationship can facilitate the aims of UDL from the point of view of the provision of alternative means, as well as accessible material in order to accommodate the needs of all learners.

## **Conclusions**

In conclusion, it should be admitted that accessibility in education is not characterised by purity. The current paper should be seen as an introductory discussion of potential links between access services as a form of AVT and the principles of UDL, hinting further connections with AST. Further research in the area could incorporate discussions of the particular characteristics of

learners, referencing various types of impairment and/or learning difficulties, as well as levels of education and types of learning. It would also be interesting to see how guidelines for the provision of accessible educational material could incorporate access services and vice versa. Different approaches to the topic could include audio description as substitute of image in various educational contexts, with the example of audio books.

A detailed analysis of legislation, national and international regulations, as well as policies that are related to accessibility and education could contribute to the design of a framework that will incorporate solutions for inclusive and accessible education generally and, particularly, for each of the fields discussed in this paper. Such an attempt should also take into consideration Web accessibility standards, as well as legislation related to the accessibility of educational environments in general.

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## Biographical Note

**Emmanouela Patiniotaki** has been involved in the language industry since 2004. She has worked with a substantial number of vendors in translation, localization and audiovisual services. She teaches Translation and Technology-related modules at the UCL Centre for Translation Studies (CenTraS), where she also developed and runs the first online course in Cloud-based Translation Tools and the Intensive Summer Course in Translation Technology, while she is also an independent provider in Audiovisual and Specialised Translation, and Access Services. She is

currently the co-ordinator of all professional translation courses at CenTraS. Her research focuses on the design of holistically accessible environments, with a variety of combinations of fields, including Disability Studies, Audiovisual Translation, Web Accessibility, and Online Learning. Other research interests involve Crisis Translation and Machine Translation. Emmanouela is a member of the Movement of Disabled Artists and the Movement for the Emancipation of Disabled People.