ACCESSIBLE AND INCLUSIVE HIGHER EDUCATION: THE ESVI-AL PROJECT

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ABSTRACT

The paper discusses the work carried out and achieved by the ESVI-AL project (Educación Superior Virtual Inclusiva . América Latina) for accessible and inclusive higher education. The three-year project was funded by the ALFA III programme of the European Commission in 2012-15. Its general objective was to improve the accessibility of virtual educational programs, offered by higher education institutions (HEI), especially in Latin America. Accessibility is understood to concern environments and e-learning services to make services understandable, operable, usable, and practicable for all people. The fundamental global needs and challenges to improve accessibility in higher education are the concerns of the United Nations, the European Council and various national bodies in many countries. Many countries are adapting their legislation to offer accessible and inclusive education to all people.

KEYWORDS

Accessibility, Inclusive, Training, Standard 6

INTRODUCTION

The United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006) addresses the agreement established that all people despite of the type or severity of their disability have the right and opportunity to participate in education and to fully develop their personality, talents, creativeness and physical skills without discrimination. This declaration forms a wide ranging basis for prohibition of discrimination and the principle of equal treatment. The prohibition of discrimination is complemented with a wide range of measures to eliminate discrimination and to promote equality. For example, Finland is in a process to ratify this agreement.

The Council of Europe is running a long-term programme on Disability Policy 2006-2015 (European Commission, 2010). It includes operations of education and training. The policy declares that all people who have a disability independently of its nature or degree have equal access to education and a chance to develop their personality, skills, creativity, and

intellectual and physical abilities. It also declares that people with disabilities have the opportunity to apply for study places in mainstream schools, obligating the authorities to develop educational opportunities that meet the needs of people with disabilities in an adequate way. This means a fundamental change in supporting and encouraging people with disabilities and of all ages in lifelong learning, as well as facilitating a smooth and effective transition from one level of education to another, and from education to employment. Schools are responsible for promoting a respectful mental attitude towards the rights of people with disabilities at all levels of education, including early childhood education for children. It should be ensured that all general education and learning materials and teaching are accessible to people with disabilities.

The European Ministers of Education set the following targets in the Bologna process (Bologna Process Website, 2010). Inclusive higher education to be completed in this decade means that (1) students in higher education should reflect the diversity of the population, (2) measures should be taken to ensure that more students from underrepresented groups will be able to access higher education, and (3) conditions are to be created for everyone to complete their studies through developing learning environments and ensuring sufficient financial conditions, and the member countries should set their own targets for the participation of the underrepresented groups to complete their studies.

Non-Discrimination Act prohibits discrimination (Finlex Data Bank, 2004): No one shall be discriminated against on the basis of age, ethnic or national origin, nationality, language, religion, conviction, opinion, health, disability, sexual orientation or other personal characteristics.

Discrimination means:
    1) the fact that someone is treated less favorably than another is, has been or would be treated in a comparable situation (direct discrimination);
    2) an apparently neutral provision, criterion or practice would disadvantage people in comparison to other groups, unless the provision, criterion or practice is a legitimate aim and the means of achieving the aim are appropriate and necessary (indirect discrimination).

Over the years the Ministry of Education and Culture in Finland has initiated many measures and actions to implement Inclusive and Accessible Higher Education (Penttilä, 2012), (Nurmela, 2012), (Karhu, 2013). It is the task of the ministry to ensure the implementation of previous recommendations and requirements set by the various organizations and actors. In this context several subfields were introduced as issues to be developed. Recommendations for accessible learning concern the planning of university operations, staff and faculty training, study guidance, work and study spaces and communication including accessibility of online and printed communication.

To move towards an inclusive education, progressively and substantially increasing alternative education practices based on Information Technologies and Communications (ITC) are needed through the implementation of accessible virtual learning, understanding accessibility as the "extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use" (ISO 26800, 2011).

Extending this concept of accessibility to the virtual educational context (Teixeira et al., 2013), in which teachers use digital educational content, it should be ensured that the content is

accessible, i.e. understandable, usable and perceivable by any student who has the prior knowledge required to enroll in the training, and that having any kind of disability is not a barrier to completing the training (García et al.,2012).

WCAG (Web Content Accessibility Guidelines, 2008) is a well-known recommendation that contains accessibility guidelines to create accessible web content, but there are also other methods and/or mechanisms to make all digital content accessible. For these reasons, a workshop has been organized which teaches the main techniques that a teacher has to know to create accessible digital educational content in the most commonly used formats in virtual training, such as text documents, slide presentations, PDF files, videos, audiobooks or web pages (Aguila et al., 2015).

A variety of educational material is used in engineering education, which makes it a challenge to present information and offer education in an accessible way to people with disabilities or other functional diversity. The sixth CDIO standard (Engineering Workspace) highlights student-centered learning and the accessibility of learning workspaces.

Figure 1. Main webpage of the ESVI-AL project

ESVI-AL PROJECT

The ESVI-AL project seeks to strengthen its achievements through the creation, implementation and validation of methodologies that establish a working model for the fulfillment of accessibility requisites and standards in the context of virtual education. They represent a set of good practices and success stories, as well as quality standards that can be followed and implemented by other HEIs of the region.

The multiplying effect will be reinforced through the cooperation network that invites HEIs from Latin America and the European Union to participate in piloting and accessing the material and methodologies of accessibility in virtual spaces in their own institutions. Additionally, an Accessibility Observatory in virtual education and society was created to support HEIs in the process of implementation, management and evaluation, as well as in defining diagnostics that facilitate the elaboration of audits that validate the accomplishment of accessibility standards in virtual education.

The partners of the ESVI-AL project are seven Latin American universities and three European universities: Universidad Continental Perú (Peru), Universidad Galileo

(Guatemala), Universidad Técnica Particular de Loja (Ecuador), Fundación Universitaria Católica del Norte (Colombia), Universidad Politecnica de El Salvador (El Salvador), Universidad Nacional de Asunción (Paraguay), Universidad de la República (Uruguay), Universidad de Alcalá (Spain), Universidade de Lisboa (Portugal), and Helsinki Metropolia University of Applied Sciences (Finland). Four international collaborating institutions are also participating. They are the World Organization of People with Disabilities (DPI), the Latin American Blind Union (ULAC), the International Association for Social Security (ISSA), and Virtual Educa. Figure 1 shows the countries as well as the logo of the universities and institutions which participate in the ESVI-AL project.

METHODOLOGICAL GUIDE OF THE ESVI-AL PROJECT

As a part of the ESVI-AL project, a methodological guide for the implementation of the accessible virtual curriculum development has been drawn up (Proyecto ESVI-AL, 2013). The objective of the guide is to establish a working model for the fulfilment of the requirements and standards of accessibility in the context of the e-learning, especially through the Web. The proposed model will facilitate the preparation of audits that allow diagnosing compliance with accessibility standards, and improving the ability of maturity with respect to accessibility, institutions of higher education and in general for education organizations. This guide has been designed as an instrument to support all those involved in visible virtual educational projects, mainly teachers, but also personnel management, administration and technical institutions intending to implement inclusive virtual training activities.

It has been written by a total of 51 authors from 10 countries, including 20 professors from the University of Alcalá, Spain.

A methodology or working model is established in the book for the fulfillment of requisites and standards of accessibility in the context of virtual education, especially through the Web. The proposed model will facilitate the elaboration of audits that allow the diagnostic of the accomplishment of accessibility standards, and the improvement of the maturity capacity in respect of the accessibility of education institutions and, in general, of any virtual education supplier.

This guidebook offers support to all the people involved in accessible virtual educational projects, mainly for the teachers, but also for the management, administration and technical personnel of the institutions that want to implement virtual inclusive educational activities in which students with or without disability can partake.

It is about offering a consultation guide that can be useful in the development of accessible virtual educational programs for the people involved, including teachers, managers, directors, e-learning platforms administrators, and content authors among others. The guide has been created as a part of the ESVI-AL project, financed by the European Commission through the ALFA III program the objective of which is to improve the accessibility of virtual education in Latin America.

What the reader will find in this book is a proposal for the procedures that should be implemented in a higher education institution, but also in any virtual education organization or company that is committed to high-quality inclusive education. The activities and tasks that should be carried out in the defined processes are detailed in the guide, as well as the

products, techniques, methods, quality approaches and participant profiles that should be taken into account in each phase of the virtual educational project that will be held on a virtual accessible campus which is usable and practicable for all people.

It is believed by the participants in the ESVI-AL project that a compromise must be made among all the people involved in education to ensure inclusive educational systems in all levels. It is hoped that this modest contribution of the project in the form of a methodological guidebook contributes to progressing towards the objective that is obtaining inclusive education.

This guide has become a reality thanks to the close collaboration in the organization between the partners and collaborators of the ESVI-AL project. The book can be downloaded for free by clicking the following link:
http://www.esvial.org/wp-content/files/ESVIAL_LibroDigital_ingles_2015.pdf.

THREE TYPES OF VIRTUAL COURSES BY THE ESVI-AL PROJECT

Courses for teachers

Inclusive teaching innovations

The main objective is to build a framework based on the theory and implementation of accessible virtual academic programs involving the participation of persons with various disabilities. Professionals and teachers of accessible virtual academic programs update their awareness of accessibility through accessible documents involving people with visual, hearing, or motor disabilities. Such activities also promote the dissemination and propagation of producing documents with respective characteristics.
The objectives of the course are:
- Developing accessible virtual educational quality projects for the inclusion of people with disabilities in higher education through the use of the content proposed by the ESVI-AL Guide. Proposing inclusive virtual educational projects offering access to higher education and being forwarded to different market segments.
- Producing universal and accessible documents based on the provided theory and implementation based on the teacher guide of the accessible virtual education project.
- Preparing documents with the consideration that usability and accessibility should be taken into account.

Instructional design

The main objective of this course is that teachers learn to implement phases that are an integral part of instructional design, and that are proposed by a chapter of the methodological guide for the implementation of accessible virtual curriculum development (ESVI-AL Guide, a chapter about project planning in inclusive education).

Creating accessible educational materials

In order to train participants to create accessible educational materials, as described in the methodology for development of accessible virtual training programmes, the ESVI-AL project

offers a course in creating accessible digital instructional materials, aimed at university teachers, so that they learn how to create digital educational materials that anyone can use in their studies, whether or not having any kind of physical or sensory disability.

The objectives of the course are:

- Contributing to the specific training of teachers, enabling them to create text documents, presentations with slides, pdf documents, audiovisual material and accessible web pages.
- Raising the awareness among participants of the problems that students encounter in their virtual studies.
- Acquiring skills in the use of tools for the creation of and reviewing accessible virtual educational resources.

Another objective is that specialized teachers who have passed the course become multiplying agents, actively participating in training other teachers.

Training courses for employment

Training is intended for people with or without disabilities who want to improve their employability in the following fields:

- Computer/office automation
- Initiative business
- Community management
- Preparation for job introduction in call centers
- Writing for communication services

Course for managers of accessible e-learning platforms

Analysis and correction of accessibility of web pages and applications

This course is intended for developers of web pages and applications, in order to train them to create accessible web pages and applications.

Management of an accessible Virtual Campus ESVI-AL

A course called %Managing an Accessible Virtual Campus+offers participants an introduction to the importance of accessibility in e-learning, and how to assess accessibility of a virtual campus platform.

Finally the participants should have the knowledge necessary to install, adapt and maintain an accessible virtual campus platform based on the stable version of Moodle 2.4 with the aim that knowledge is replicated in the virtual campus of the institution administered by the participant.

Objectives of the course:

- Identifying the importance of web accessibility on a virtual campus with disabled people.
- Identifying the accessibility standards applicable to a virtual campus.
- Using automatic accessibility tools to assess the virtual campus and the content of teaching material.
- Applying the main criteria in accordance to a heuristic evaluation of accessibility.

- Installing and configuring the accessible version of Moodle ESVI-AL.
- Acquiring basic knowledge to adapt and maintain accessibility on a Moodle-based virtual campus.

All courses are accessible and therefore they can be passed by any person who has the prerequisite knowledge, whether or not having a physical or sensory disability.

OTHER ACHIEVEMENTS

The ESVI-AL project has resulted in about 100 publications and almost 100 training occasions organized by partner universities. Each active year, two international conferences have been organized under the names of CAFVIR (Congreso Internacional sobre Calidad y Accesibilidad de la Formación Virtual) and ATICA (Congreso Internacional sobre Aplicación de Tecnologías de la Información y Comunicaciones Avanzadas).

Ten virtual courses have been created and they have been taught since 2013 at universities in Latin America. Two courses are aimed at teachers: "Creation of accessible digital instructional materials", and "Pedagogical innovation in and accessible virtual quality education".

The workshop on "Creating an accessible virtual campus" was aimed at managers of learning management platforms, and a workshop on "Analysis and correction of accessibility of web pages and applications" was aimed at web designers and developers. These three workshops are being offered to more than one thousand teachers and technicians from more than 100 universities from 18 countries of Latin America.

Also in 2014, accessible training courses were given to improve the employability of students from countries of the Latin American partner universities, including students with disabilities. These courses were linked to preparation for employment, focusing on drafting documents, managing centers and support services to customers, managing social networks, computer training, and entrepreneurship.

Currently two courses are being taught, which have already been taken by more than 300 people with physical and sensory disabilities from 18 countries of Latin America. A selection of the best students of these courses participates in promoting the inclusion of students with disabilities. These accessible training courses are being subjected to a rigorous process of self-assessment and certification of their quality and accessibility, in collaboration with the Latin American and Caribbean Institute of Quality in Distance Higher Education (CALED).

At the technical level, the project has developed software for an accessible virtual campus, based on the Moodle platform to improve its accessibility, including a new extension (plugin) (Batanero et al., 2014) that will allow the adaptation of educational resources adjusted to the preferences and needs of the students. This software is open source and available from the website of the project for download. All partner universities have implemented an accessible virtual campus in their institutions using the developed software, and additionally an agreement has been reached with the Latin American Blind Union for the implementation of an accessible virtual campus at the University Galileo in Guatemala.

The project has also raised the need for research in the field of accessibility to advance accessibility and inclusion in general. In particular, in the context of virtual education the

project will support the realization of at least eight specific doctoral dissertations in this field by researchers from Spain, Ecuador, Guatemala and Peru.

Partners and collaborators have formed a new network of collaboration cooperating with the virtual society of the Accessibility Observatory in Education as this will guarantee the sustainability of the results of the project. More than 3,000 people have already joined the network showing their interest in this field. Through the website of http://www.esvial.org/ people and organizations that work to advance accessible and inclusive education and society can join as a member. More than 20 agreements between university partners have been made on double degree and credit transfer options. This will strengthen progress towards the consolidation of a space of inclusive virtual higher education into which people with disabilities can be easily integrated.

CONCLUSION

Nowadays accessibility is being boosted by a range of measures at institutions as it is demonstrated by the ESVI-AL project as well as a non-discrimination programme that the European Union has launched and that will be completed by the year 2020.

Not only students with different capacities but also teachers and the public in general must be trained in the use of accessible technology in order to create material and documentation for all people which step by step allow a society where everybody is welcome.

The ESVI-AL project has resulted in many improving measures in accessibility in seven countries of Latin America. Many people from different institutions have benefited and the universities will continue offering the information after project completion. Moreover the project has enhanced the communication and sharing of technology between Europe and America and has given its contribution to accessibility research through the study of standards, research projects and publication of papers discussing the results.

The consortium of the ESVI-AL project invites participation in the following activities:
- Taking part in educational workshops on accessibility.
- Creating pedagogical innovations in high-quality, accessible virtual education.
- Creating accessible, digital educational material and evaluating technologies of Web accessibility and accessible Web design.
- Installing and maintaining an accessible virtual campus.
- Finding out solutions based on the technical reports developed in this project.
- Sharing curriculum programmes that aim to improve the labor market integration of people with disabilities.
- Joining Cooperation Network and Accessibility Observatory in Virtual Education and Society.

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BIOGRAPHICAL INFORMATION

Markku Karhu is the Dean of the Degree Programmes in Media and Information and Communications Technology at the Helsinki Metropolia University of Applied Sciences. He is involved in international projects such as the ESVI-AL project (Accessible and Inclusive Virtual Higher Education). His current research focuses on accessibility and usability in education.

Concha Batanero is a lecturer at the University of Alcalá. She completed her Official Master in Computers with specialty in electronic teaching and learning at the University of Alcalá in 2009. She completed a Masters degree in Neuroscience and behavior biology at the Pablo de Olavide University in 2011. Her current research focuses on accessibility in education. She also collaborates with the ESVI-AL project. She has been working for 10 years for private companies in the field engineering.

Antonio García-Cabot has a MSc (2009) in Computer Science from the University of Alcalá, where he is now a postdoctoral researcher at the Computer Science Department. He has a Ph.D. (2013) in Information and Knowledge Engineering. His research interests include intelligent agents, adaptable and adaptive systems, mobile devices and usability in education.

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