EduTech: Proposal for the creation of virtual accessibility assistance units in Higher Education in Latin America

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Abstract

Technological accessibility constitutes a constant search for positive experiences that support the adoption of processes in their implementation. It is necessary to build management capacities that favor the training in accessibility of the university community considering the inclusion of students with disabilities. The European experience in the application of regulations and good practices in accessibility constitutes a relevant contribution for Latin American universities that need to strengthen their knowledge in attending to diversity, particularly disability. The Erasmus+ EduTech project seeks to improve Accessible Virtual Higher Education by generating a set of recommendations and support tools for inclusive training. One of the major contributions of the project will be the creation of Technological Accessibility Attention Units in each partner university, in charge of implementing the results of the project. In the long term, the project results could impact the educational and occupational insertion of students with disabilities.

Keywords: Accessibility, Virtual Education, Adaptability, Universal Learning Design, Erasmus+

1. Introduction

The Agenda for Inclusive Education, issued by UNESCO in 2004, integrates the foundations of inclusive education through the Education for All movement, emphasizing the conviction that education is a fundamental human right, indispensable for a more equitable society. The achievement of this right requires the development of strategies, tools, attitudes, and skills that facilitate the educational care of all people during their lives.

The development and implementation of Accessibility standards in Higher Education applied to technology requires constant training and management in Higher Education Institutions (HEI). Despite the relevance of integrating accessibility into people's lives, in much of Latin America, there is a lack of strategies aimed at developing accessible and inclusive services in HEIs that must face the challenge of providing Accessible Virtual Higher Education.

The entry, permanence, exit, and labor inclusion of students with disabilities in HEIs have not achieved a clear position that defines and articulates attention to diversity with a focus on disability. Teaching, research, and extension are fragmented, isolated, and decontextualized from the policies and norms related to inclusion and accessibility.

The Erasmus+ EduTech project "Technological assistance to accessibility in Virtual Higher Education" seeks to generate a unit or department model in HEIs that address the different aspects related to technological accessibility, considering the infrastructure and management capacities for Accessible Virtual Higher Education. The model includes training and implementation of good practices in student care in aspects of accessible technology; tools for accessible virtual training; accessible virtual campuses, accessible open learning resources (OER); accessible Massive Open Online Courses (MOOC); quality of accessible virtual training and training aspects for those involved in the teaching-

learning process. This seeks to strengthen training programs on issues of the "Agenda for new qualifications and jobs" of the 2020 Strategy, aimed especially at vulnerable groups such as people with disabilities.

The EduTech project is part of the Erasmus + program in its Key Action 2: cooperation for innovation and the exchange of good practices. The action is intended to support the modernization, accessibility and internationalization of higher education in the partner countries, contributing to their development and sustainable and inclusive socio-economic growth.

The project arises to alleviate the problem of the application of technological accessibility in Higher Education Institutions. These institutions in Latin America have limitations both in terms of governance and resources for the implementation of institutional strategies for the care of disabilities. One of the actions to be highlighted in the project is that aimed at the training of students from their entry to their job placement and the training of teachers in the field of accessibility in education.

2.   Related work

There are several terminologies used to the space generated for the attention of the disability in the HEI. Under this framework, support services for people with disabilities in Universities are created. The general objective of this type of services is *"to guarantee the full inclusion and participation of university students with disabilities, considering their individuality, through an effective equality of opportunities and non-discrimination in academic life, as well as the promotion of awareness and awareness of all members of the community"* [8]. On the other hand, accessibility in learning within the university is related to the platforms used and the mode of interaction, in general, virtual campuses, which according to [5] a "Virtual Campus is an environment made possible by the new technologies of information and communications, which comprehensively support the educational, administrative and social processes of educational institutions ".

An analytical approach based on comparative analysis of completion rates between disabled and non-disabled students could identify accessibility deficits that have a real impact on learning [4].

[6] describes the quantitative metrics WAB, WAQM, UWEM, and A3 that help measure web accessibility that can be used to assess the accessibility of learning technologies with conformance testing and user testing.

In 1994 Hodgins defines the concept of learning objects and receives acceptance for the premise of ease of reuse [7]. Technological advancement and the use of digital resources in the mediation of learning, makes its concept constantly evolve. The definition of [3] as "… digital entity, self-contained and reusable, with a clear educational purpose, made up of at least three editable internal components…" . The constant coincidence in the characteristics of identification, recovery, detectability, reusability and interoperability; allows to delimit it, but at the same time understand the variability and cultural evolution of its practice in virtual learning environments. It is in this evolutionary path that legal aspects and reuse licenses are established which initiate the REA (Open Education Resource). The term "open" involves an active participation in 5 activities determined by [9] as the 5R, retain, reuse, review, remix and redistribute.

Some projects have been developed to favor accessibility and adaptability in virtual environments. The shared experiences EU4ALL [7], ESVIAL [1], TILE, AEGIS, ACCESSIBLE [2], point out relevant research and implementation efforts to promote educational inclusion. At the same time, the evaluation of quality in e-learning generates proposals for models and standards to be applied, for which the accessibility criterion is considered relevant but has not yet reached a consensus of information.

3.   Methodological proposal

The EduTech project seeks to improve Accessible Virtual Higher Education by creating

guides with recommendations on various aspects of accessibility and inclusion, the implementation of a set of tools that help the application of technological accessibility, and the application of good practices in partner universities in Latin America and whose implementation process can be replicated in other universities. Table 1 systematizes the objectives of the project in correlation with the areas considered to strengthen accessibility:

Table 1: EduTech project objectives and application areas

EduTech objectives	Technological Accessibility Attention Unit	Accessible Virtual Campus	Accessible OER and MOOC	Virtual Training Quality Assessment	Accessibility training	Labor competencies for inclusion
Implementation and management of replicable and adaptable assistance units in HEI.	X			X	X	
Preparation of technical and implementation guides.	X	X	X	X	X	X
Development of support tools for the implementation of accessibility.		X	X	X		X
Improvement of technological infrastructure.	X	X				X
Improvement in the educational and labor insertion of students with disabilities.	X	X	X			X
Guarantee the sustainability of the project.	X			X	X	

The methodological proposal for the implementation of accessibility in HEIs is based on the establishment of reference frameworks. This contributes to the generation of applicable procedures in Latin American universities, considering the technological dimension and its interactions both in LMS and in the development of tools. Among the tools considered we have: Repository of accessible learning objects that considers the needs and preferences of the student, evaluation of accessible learning objects, adequate automation of accessibility metadata in OERs, accessible Moodle plugins, Simulators that strengthen the development of work skills in students with disability.

Figure 1 shows the proposed structure of EduTech to strengthen accessibility in Higher Education Institutions.
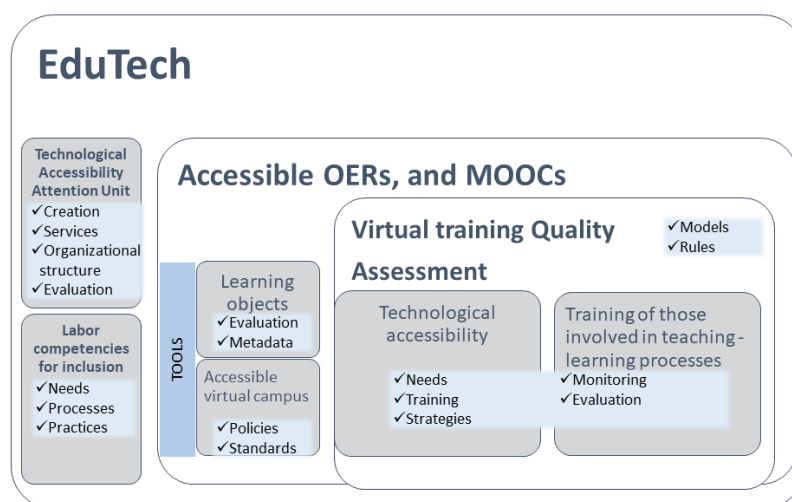

Figure 1: Proposed structure of the EduTech project

- **Technological Accessibility Attention Units:** The Technological Accessibility Attention Units are in charge at the university of giving support to both teachers

and students in accessibility aspects in the application of ICTs in teaching. These units have the necessary infrastructure and knowledge to help those involved in teaching-learning processes where accessibility is an important part. One of its main tasks will be to ensure accessibility to the virtual campus and its contents. To achieve this, teachers will receive specific training in accessible virtual education.

- **Accessible Virtual Campus:** Establishes mechanisms that guide the implementation of accessible virtual campuses using verification instruments that reduce the digital barriers that prevent access to academic information for students with disabilities.
- **Accessible OERs and MOOCs:** Determines the guidelines for the installation, updating and maintenance of an accessible virtual campus with adaptability characteristics and creation of accessible learning resources, accessible OERs and accessible MOOC courses.
- **Virtual Training Quality Assessment:** Provides guidelines for self-assessment of the quality of virtual training of accessible courses at the participating institution, considering training workshops on accessibility for teachers and technicians based on the resources identified and adapted by EduTech.
- **Accessibility Training**: Describes essential aspects and procedures for the design and implementation of a training program for those involved in the accessible teaching-learning process.
- **Labor Competences for Inclusion:** Proposes the guidelines for the generation of training workshops on labor insertion based on their competencies, considering job simulators that facilitate training**.**

4.   Conclusions

EduTech will provide the technological bases for the advancement in accessibility and inclusion in Higher Education, especially in Latin American HEIs. Through the establishment of Technological Accessibility Attention Units, training in accessibility of those involved in the teaching-learning process will be favored and the improvement of the inclusion of students with disabilities will be promoted. The project also promotes research in novel aspects of accessibility, inclusion and user experience and will generate a framework for its practical application adapted to the needs of HEIs.

Equipping Technological Accessibility Attention Units will support the integration of students with disabilities in university life and the training of teachers in accessibility.

A series of pilot actions will be carried out in Latin American HEIs for the practical application of the project results to contrast the benefits provided by the Technological Accessibility Attention Units with the institutional objectives of each HEI.

Raising awareness about the diversity of learning and the requirements to implement accessible technologies requires constant monitoring of Latin American HEIs that favors the interaction of networks to share knowledge jointly and effectively.

5.   Acknowledgements

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