Including Students with Disabilities in Distance Education

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Abstract

The aim of the project InSIDE is to develop accessible distance education (DE) programmes for individuals with disabilities (visual, hearing, or mobility / physical impairments). The overall objectives of the project are to: a) develop new and innovative, accessible and inclusive DE programmes improving the quality of Higher Education (HE) for individuals with disabilities and offering flexible learning and virtual mobility, b) build capacity and professional development in administrative and teaching staff in developing and carrying out accessible and inclusive DE programmes, and operating the accessibility offices, and c) involve individuals with disabilities in a user-center design so that accessibility and usability are achieved in conjunction, and the links between education and society are strengthened.

Keywords: Disability, tertiary education, distance education, eLearning,

Motivation

It has been reported that Individuals with Impairments (Iwl) are unwilling towards their transition to university, face serious challenges during their university attendance or quit their studies without developing the necessary skills to cover future working requirements.

In Africa, more specifically, on one hand, HE education has failed modernization, and on the other, Iwl are numerous and have limited access to appropriately designed university programmes. Thus:

1. In Africa, 3.3% people aged from 15 to 59 years old suffer from a severe disability, while 19.1% experience a moderate or a severe disability (WHO, 2011). In Morocco, Algeria and Tunisia there more than 1MM persons (per country) with sensory disabilities, mobility impairments from musculoskeletal diseases and unintentional and intentional injuries (WHO, 2009).
2. Though in Africa there are more than 1600 Higher Education Institutions (HEIs), tertiary education has not been prioritized for decades and the lack of development actions has led to the shortage of skilful human resources and the absence of connection between studies and labour market demands (UNESCO, 2017). Access to HE for the general population is at about just one-fifth of the global average (GPE, 2015). Equally discouraging is the scant participation of Iwl in HE. The data collected from the participant institutions indicate a percentage of 0.02-0.03% (disabled persons in the general student population based on the number of enrolments every academic year) for Algeria and Tunisia, and 0.01-0.08% for Morocco. From those few enrolled, only the 50%, approximately, graduates.

Therefore, we suggested the development of inclusive and accessible DE programmes as a solution to education and unemployment dead ends for Iwl in Partner Countries (Morocco, Algeria and Tunisia). Though there may arise short-term costs (adapting the educational material, training the staff, acquiring equipment), the long-term benefits (i.e. economically active citizens) outweigh them. (GSDRC-Helpdesk Research Report, 2012) Hence, a wide horizon of education and training opportunities for

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continuity and success in academic course, new and/or job-specific skills acquisition, emerges as a key element towards modernization of HE in Morocco, Algeria and Tunisia.

InSIDE: Including Students with Impairments in Distance Education (https://www.inside-project.org) is a multi-axis project and, consequently, it addresses multiple thematic national priorities and an amalgam of regional priorities resulting in diversification within the region in terms of the objectives. The specific ones are outlined below:

- Extended literature review for precedent trials in DE for individuals with disabilities.
- Development of the most suitable educational material for individuals with disabilities in terms of accessibility, usability and educational efficacy through the study of end-user requirements.
- Adaptation of a course delivery system that best serves the needs of individuals with disabilities in DE.
- Foundation of accessibility services in HE so that students with disabilities would be supported during their attendance in HE.
- Training of advisors in the services of the accessibility offices, and the training of the trainers (advisors and representatives) so that they will be able to train the end-users (teaching staff and students with disabilities).
- Examination of the regular co-operation of all the above to deliver inclusive DE courses effectively when learning and skill enhancement are concerned, considering end-users feedback too.

Methodology

InSIDE is structured in five main execution stages from the study of the state of the art to the implementation of Pilot courses output of the designed DE programs.

State of the Art Research

Included a detailed examination of the current literature on:

- Distance Education training programmes for individuals with disabilities.
- Adapted educational material for students with disabilities.
- DE delivery systems (software) focussing on the accessibility aspect.

Development and Assessment of Adapted Educational Material

Based on the literacy review, educational material in a preliminary version was developed to meet the needs of students with disabilities. The team produced representative samples of all the different types of information output both in printed and in digital form. In addition, the team prepared a presentation of: a) the adaptations to the different types of information output, and when was not possible b) the alternatives for presenting information satisfying minimum requirements for education. The different types of information with the respective adaptations and alternatives per impairment was catalogued in detail.

The adapted and the alternative materials were assessed with reference to their accessibility and usability adequacy as well as to the end-users' satisfaction. The assessment process will be completed in two stages, a) through a pilot study – with the participation of 5 persons from each impairment category (visual, hearing, mobility/physical) – the accessibility and usability adequacy will be examined in detail, and b) 90 persons from each impairment category will be asked to refer their requirements as end-users of the material under examination.

Firstly, special education material is approached holistically and is assessed by so great a number of individuals with disabilities. That, among others, permits us to reach valid and objective results. Then,

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adaptations can be applied on the material to improve it. The result would be fully accessible, usable and effective material that can be proposed as a template for the educational material that in the future. Finally, guidelines for the development of fully accessible, usable and effective educational material are analytically described.

Due to the corona-crisis, the assessment of the educational material is not completed.

Assessment of the Most Widespread LMSs and Adaptations

Based on the results from "State of the Art", the most widespread LMSs were critically examined in reference to their accessibility and usability aspects, targeting to propose possible improvements in order to increase their usage by individuals with disabilities. Hence, LMS developers or providers could apply the proposed alterations. It is possible to find more information about the evaluation and selection of LMS in the next contribution of this compendium (*Valentin Salinas Lopez: How to Select an Accessible Learning Management System for Distance Education*).

Training of the Accessibility Advisors, Trainers, and End-Users

Due to corona-crisis, this part had to be postpone. However, the aim is each participant university form Partner Countries establish an accessibility office. For doing so, a training session will take place so that two persons from each university will be trained on the operation of the office and act in the future as accessibility advisors in their university. A second training session will take place in each participated university of Partner Countries. It will focus on the guidance upon the acquisition of assistive technology, management issues, and functionality directions.

In the next stage, two accessibility advisors and four trainers-representatives of each university of the Partner Countries will attend a training programme in DE for students with disabilities. They will be instructed on the development and the use of the adapted educational material, the use of the LMS, and the delivery of DE programmes for students with and without impairments. The participants will also receive training on how to train the rest teaching staff in their universities.

Finally, the training in DE will be completed at the universities of the Partner Countries - at their place in their own premises using their own equipment. Lastly, end-users will be trained, teaching staff, and, next, individuals with disabilities. The content of the training will pertain to the development of adapted educational material, the delivery of DE courses with the use of the adapted LMS, and the operation and the services of the accessibility office.

In the training of end-users (individuals with impairments), the six local trainers of each university will train individuals with disabilities and representatives of the respective local associations. The duration of the training of each group will be 7 days, and both trainings of teaching staff and of individuals with impairments –will be assessed to define their results.

Implementation and Assessment of Pilot Courses

Each one of the participant universities of the Partner Countries will carry out DE pilot courses-2 programmes per university. The pilot courses will engage a) the accessibility advisors of the university, b) teaching staff that have been trained in the Trainings stage c) students with disabilities, and d) students without impairments. The aim will be 3-4 instructors to educate about 6-8 individuals with impairments and 6-8 individuals without the targeted disabilities. These instructors will prepare the necessary educational material with the support of the accessibility advisors. The subjects of the programmes will be chosen with the providence of being different between each other in order to examine how different specialties could be delivered through a model of DE for individuals with impairments.

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The results of the educational process will be examined through an assessment tool resembling the tests conducting at the end of a semester in the context of a university program. Moreover, the participants' satisfaction will be examined through specific-designed questionnaires to all the different parts teachers and students.

Conclusion

Not only on European level but worldwide there is no DE programme for individuals with visual or hearing or mobility/physical impairments fully completed in terms of accessibility, usability and educational effectiveness in all fundamental components – educational material and pedagogical approaches, DE delivery system, and accessibility services. Thus, it is undisputable that the InSIDE proposal is innovative throughout its core design. More specifically, the project's innovative aspects lie in:

- The holistic approach of the educational material. Hence, the team will develop complete educational material in all the possible types of information output in printed and in digital form: a) text (simple text, table, mathematical representation), c) audio, d) graphics (image, diagram, digital design), e) multimedia (presentation, video, 3D graphics/video), f) tactile (model). The material will be delivered in adapted format to meet the needs of students with disabilities and/or in alternative forms wherever the initial format is not efficiently adaptable. These modifications will be managed under the prism of each impairment – visual, hearing, mobility/physical.
- The user-center design – i.e. for the first time the material will be examined by a great number of end-users (individuals with disabilities) with the purpose of further improvements in the consequent stage of the project.
- The multi-aspect adaptation of the DE delivery system – i.e. adaptations pertaining to accessibility, usability and educational effectiveness.
- The overall assessment through complete DE programmes and the participation of end-users that will end up in feedback and possible suggestions.

To sum up, the project is equipped with two main innovation axes: a) the holistic approach of developing DE programmes for individuals with visual, hearing, mobility / physical impairments that will culminate in a ready-to-use tool, and b) the user-center design that engage end-users in various development stages fostering social integration and enhancing intercultural understanding.

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