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Comprehensive Training to Implement Inclusive Distance Education for Students with Visual, Hearing, and Motor Disabilities in North African Universities

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Abstract. In the framework of the EU funded Erasmus+ project InSIDE, whose goal is to build capacity to deliver inclusive Distance Education (DE) in universities of the Maghreb region, a comprehensive training for teachers and university staff have been carried out. The aim of these training is to prepare the participating universities to enable the social inclusion in the delivered DE and to setup an accessibility unit for providing support services to students with visual, hearing, and motor disabilities at their institutions.

Keywords: Digital Accessibility, Distance education, eLearning, Tertiary education.

1 Intro

InSIDE (Including Students with Impairments in Distance Education) [1] is a Capacity Building in Higher Education (Erasmus+) project that aims at developing accessible, inclusive, and educationally effective Distance Education (DE) programs for individuals with Visual, Hearing and Mobility (ViHeMo) impairments through a user-centered design. DE programs will be structured on three axes: a) educational material, b) DE delivery system, and c) educational effectiveness / pedagogical approaches. Eleven universities from Maghreb – four from Morocco, four from Algeria, and three from Tunisia – are trained by the University of Macedonia (UOM), Greece, National and Kapodistrian University of Athens (UOA), Greece, and Johannes Kepler University (JKU), Austria, so that they are able to implement the DE programs at hand [2]. These programs will deliver critical competencies for vocational rehabilitation. They will provide opportunities for lifelong learning, skills enhancement, and personal fulfillment with the ultimate aim of suggesting an intelligent solution against the problems of limited access or the high percentage of dropouts in Higher Education in individuals with impairments.

Therefore, the aim of this training is to prepare the participating universities to enable social inclusion in the delivered DE and to set up an accessibility unit for providing support services to students with (ViHeMo) disabilities at their institutions.

2 Project Activity Plan

The original plan for this training comprised:

- Each of the eleven universities from the Maghreb appoints two accessibility advisors and six representatives to be trained.
- The training is provided by accessibility experts and staff from support services for students with disabilities from the participating European universities.
- The main goal is to teach not only guidelines, procedures, and usage of tools and Assistive Technology (AT) but also to perform proposed practical tasks and activities in order to build expertise among trainees so that they will be able to adapt known and tested systems to their local context by effectively implementing the lessons learned.
- The training is structured in three training sessions of four days each. Each sessions are led respectively by UOM, UOA, and JKU. The contents covered in each session are:
 1. Development and use of adapted educational material:
 - 1.1. Creation of tactile pictures, braille emposement, and verbal descriptions.
 - 1.2. Accessible video and creation of audio-tactile pictures.
 - 1.3. Accessible e-books and PDFs and their creation.
 - 1.4. Accessible mathematical and chemical representations and accessible presentations.
 2. Teaching using the Learning Management System (LMS) adapted to the project:
 - 2.1. Introduction to Moodle, installation, languages, user roles, and course creation.
 - 2.2. Moodle maintenance, accessibility, and test, assignment, and quiz creation.
 - 2.3. Production of accessible educational video.
 - 2.4. Production of accessible educational textbooks, Word, PDF, and PowerPoints, and accessible math and music notation.
 3. Delivery of Distance Education (DE) programs for students with impairments:
 - 3.1. Assessment of students, local context, and cooperation with third parties.
 - 3.2. Preparation of the student support infrastructure, university, and students.
 - 3.3. Issues with the learning material when supporting students and exam adaptation.
 - 3.4. Sustainability of the student support service, problem-solving and development of training about inclusion and accessibility for teachers and students.

3 Needed Adaptations and Alternative Solutions: from Drawback to New Chances

Although it was tried to stick as much as possible to the original plan, the final development of the training differed notably. By January 2022, when the training was expected to happen on site in Austria, COVID-19 protection rules that constrained the freedom of people traveling from abroad and limitations to social gatherings were set. Postponing the activity was not a reliable option. These circumstances made it impossible to give an in-person training at JKU Linz. Therefore, the consortium was forced to switch to a distance training mode.

This change might be assessed as a negative impact issue, as it is a risk for the project and involves additional work. However, it offered a good opportunity for both trainers and trainees to have a first-hand experience in what they intended to implement: distance higher education. The complexity of the topics required to frame the training sessions in a highly interactive way, allowing trainers to adapt their teaching pace to the remote trainees.

First, the scheduled activities were changed in three key points:

- Shorter inputs. This allowed additional time for questions and answers and provided frequent contextual information to minimize trainees' disorientation and loss of teaching pace.
- Activities, such as homework, after each training day were planned.
- Fully interactive recapitulation training sessions, in which trainees showed their results of the activities from the previous day and received feedback from peers and trainers, were implemented.

Second, in order to minimize the downsides of the distance training mode and to increase trainees' involvement, the following measures were set to make the communication as much effective as possible:

- Use of email addresses with low response time for technical and organizational support.
- Before each training day, the training program and instructions on how to access the virtual room were sent out in time.
- Communication means like chat and email, with trainers were always available.
- After the training day, a summary with recommended activities, a list of links to discussed resources, and training material used during the day was provided.
- Live transcription in all the interactive training sessions was implemented.

Third, while teaching the highly complex key topic of the delivery of DE programs for students with disabilities, training sessions were introduced called "Excursion" that allowed social and professional exchange while encouraging reflection and idea generation for implementing those programs in the trainees' universities. Those excursions gave an insider's view on how the accessibility industry, public projects and institutions devoted to social inclusion work. Some of them were:

- Insight into works and procedures of association BookAccess that adapts school-books to visually disabled students in Austria.
- Presentation with a demonstration of work done by the GESTU project for supporting deaf and hard-of-hearing students at all universities in Vienna and surrounding, based at Vienna University of Technology (TU Wien).
- Presentation of the Buddy project and how it works to match cognitive disabled people with the right assistive technology.
- Presentation of the SIDPT project and how trainees can benefit from the training materials for the publication industry it offers for born-accessible digital document production.

4 Evaluation and First Results

When the training was concluded, participants were invited to fill in a quality assurance questionnaire set by the project's quality assurance plan anonymously. The questionnaire is divided into seven sections assessing different training aspects. The first six sections contain 5-point Likert scale questions and one open question to enable the discovery of new findings while participants express their own opinion. 50 members from the eleven universities in the Maghreb region participated actively in training, and 48 answered the questionnaire. Following is a summary of the main results:

1. Training goals:
 - Did you achieve all the learning goals?
positive or very positive: 91%
 - To what degree were your training expectations met?
high or highest: 72%
 - As a whole, how do you rate the learning experience?
high or highest: 80%
 - To what extent have your skills improved?
high or highest: 48%, neutral: 43%.
2. Before the training
 - To what extent did you know the objectives of the training?
high or highest: 65%, neutral: 24%
 - How well were you informed about the training before taking it?
good or very good: 43%, neutral: 57%.
3. Training content
 - What was the overall quality of the content?
high or highest: 89%
 - Does the structure of the training logical and easy to follow?
positive or very positive: 46%, neutral: 54%
 - The content was in-depth enough.
agree or completely agree: 80%
 - The difficulty was appropriate?
agree or completely agree: 48%, neutral: 52%
 - To what extent was understandable the material?

- high or highest: 65%, neutral: 26%
 - To what extent the content was concise and not repeated?
high or highest: 59%, neutral: 24%, low or lowest: 17%
 - The provided material was accessible to you?
agree or completely agree: 52%, neutral: 28%, disagree or completely disagree: 20%
 - Does the amount of assignments was appropriate?
agree or completely agree: 48%, neutral: 41%.
 - The duration of the training was enough to achieve the training goals.
agree or completely agree: 57%, neutral: 33%
 - The provided material helped you to achieve the training goals.
agree or completely agree: 59%, neutral: 28%
 - The provided material helped you to improve your skills.
agree or completely agree: 59%, neutral: 24%, disagree or completely disagree: 17%.
- 4. Trainers
 - What is the overall rate that you give to the trainers?
high or highest: 91%
 - What was the expertise of the trainers?
good or very good: 91%
 - How was the communication with the trainers?
good or very good: 91%
 - Did you feel comfortable when asked or expressed your opinion?
positive or very positive: 89%
 - Were your questions solved effectively?
positive or very positive: 57%.
- 5. Venue
 - The infrastructure to provide the training was generally a good environment(s) for learning.
agree or completely agree: 67%, neutral: 20%
 - All needed teaching material was always available.
agree or completely agree: 59%, neutral: 24%, disagree or completely disagree: 17%
 - The accessibility was taken into account.
70% agree or completely agree: 70%, neutral: 22%
 - The access to the training was easy.
85% agree or completely agree: 85%.
- 6. After the training
 - Have you received enough further guidance information?
positive or very positive: 91%
 - Do you have enough knowledge to perform the tasks you were taught?
positive or very positive: 54%, neutral: 37%
 - Do you feel qualified to perform the tasks you were taught?
positive or very positive: 48%, neutral: 41%.

The answers point to a general reasonable satisfaction being the median and the mode of the answers is always on the positive side.

On the plus side, trainers received the highest scores among other assessed topics. Other aspects that receive an over-average grade are the access to the training, the guidance information provided for the after-the-training activities, and the quality of the material provided during the training.

On the side of things to be reviewed, it has been identified a number of different issues. Participants felt that:

- they were not well informed about the training beforehand,
- the structure of the training was not as logical and easy to follow as they expected,
- the material provided was not accessible to them as expected,
- they were not very confident in performing themselves what they were taught.

In the 7th section of open questions: On the plus side, the most exciting topics for the audience were the practices on accessible educational material creation, AT tools, and the organizational aspects of the disabled student support office. On the minus side, they expressed the need for more practice and face-to-face training. Some of them suggest reordering the lessons placing some of part 2 at the beginning of the training. Additionally, some expressed that lessons that tackle the accessible educational material creation could be reduced because they saw there some content overlapping and this time could be filled with practices.

The main lessons to be applied in the future training are:

- The information about the training has to be available with more time in advance to participants.
- Better coordination and agreement among trainers on the schedule and topics treated.
- Make available training material before the training sessions to allow trainees to be ready.
- Increase the focus on practical activities.

5 Next Steps

After having performed a later training of two days focused on revisiting, practicing, and solving questions on the topics covered, the next step planned in the project is providing additional training in the settings of each of the eleven universities. This focuses on practical activities to reinforce the lessons taught and to increase the self-assurance of trainees while using the ATs and the learning management system provided by the project. Once this training is completed, it will be time for each participating university to design and deliver training to their fellow teachers, technical staff members, and students with disabilities on their premises.

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