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ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



Universidad
Francisco de Vitoria
UFV Madrid

02

“D4ALL Training
course for educators”

EDUCA4ALL

DESIGN FOR ALL

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1. Introduction

Background

This document corresponds to the second Output Identification (O2) deliverable, in the EDUCA4ALL project: Required capabilities for educators to include the Design for All (D4ALL) principles in current teaching practices.

In this phase of the project a D4ALL training course for educators has been developed.

It is considered as starting evidence that there is insufficient training on Universal Design among the university teaching staff.

This training course for educators is aimed at those university lecturers and professors who develop their teaching in Architecture or Civil Architecture degrees, independently of the subjects they teach.

In principle, it is proposed as an optional proposal for universities to offer their staff, leaving open the possibility of possible compensation or advantages (to be specified for each University) for those teachers who complete the course.

Goals

Considering students the main designers of the future, it is necessary to make them aware of the societal challenges. In this way, it is required to provide them with the correct knowledge to make them take into consideration the barriers faced by people with disabilities at the various professional activities they will develop in the future. This is the main reason for establishing a D4ALL skills profile for their teachers.

For this purpose, the creation of a D4ALL course not currently existing in the "teacher training plan" is envisaged, which any European university can offer its staff. This training course for teachers, apart from being focused on the Architecture and Civil Engineering university degrees, will also offer a

module of common training so that any interested department of any university can receive a basic training in this field. The fact of implementing these D4ALL training courses in the universities' "training plan for teachers" is one of the main expected impacts of the EDUCA4ALL project.

The different trainings, that teachers receive periodically at universities, offer them several tools and resources to implement initiatives of innovation and improvement of the teaching activity's quality, in the framework of the European university convergence. By implementing the EDUCA4ALL project's D4ALL training course for educators in these university teaching plans, it is also intended to promote the exchange and dissemination of good practices carried out by teachers. The teachers training courses designed during the project will provide them with the required tools and knowledge in order to be able to introduce D4ALL principles in the existing modules they teach and in new modules that can be included in the future.

Expected result

The main result that will be achieved applying the activities proposed in this intellectual output, is a standardized competence profile which contains the requirements in the field of D4ALL that any teacher of any Architecture and Civil Engineering university degrees in EU should meet.

To do this, a training course is designed to offer a specific and practical training for their educators. The expected result is that any university in EU will be able to incorporate these training courses into their staff training plans, once they have been implemented and validated at the four pilot universities.

The training course, although developing a specific case, raises different possible scenarios with different degrees of development. In this way it is expected to cover the great diversity existing between European universities, as well as the busy schedule of teachers at the university.

This training aims to address the training in Accessibility and D4ALL of university students in Architecture and Civil Engineering from a new challenge: to consider that accessibility is not limited to the explanation and compliance with existing regulations, but the understanding of the needs that motivate these considerations, as well as the creative application of D4ALL in the projects, beyond the minimums established by the regulations.

2. Methodology

D4ALL skill profiles

This training course for teachers will provide educators with the tools and knowledge needed to introduce the D4ALL principles in modules they teach. For this purpose, a profile of D4ALL skills is developed. This profile includes the skills and knowledge in terms of D4ALL that any educator must have in the analysed university degrees.

Basic Contents

From a general perspective, the basic contents of the common training are:

1. Equal opportunities and people's quality of life factor;
2. Human diversity, differentiated needs;
3. Legal framework and basic regulation (creative and effective application);
4. D4ALL in the newly constructed physical environment: Building, Urban Planning and the Natural Environment;
5. D4ALL in the existing physical environment: Restoration in Building and Urban Planning;
6. D4ALL in Tourism and Entertainment;
7. D4ALL in the Natural Environment.

These contents may be developed in different ways (more or less developed or summarized) according to the chosen scenario detailed below (section four).

Structure

The training for educators in the Architecture and Civil Engineering university degrees is divided in four different modules: Introduction training, Basic training, Specific training and Application training.

Introduction training:

This module aims to raise awareness and motivate the teachers to carry out the course. It will have a theoretical-practical content in the format of workshops and / or brief presentations. This module may include:

- *Practical cases*: Practical exercises to work on the shown concepts: workshops, case studies, webinars, experiences, activities...
- *Queries*: to analyse the knowledge in terms of D4ALL and the needs of persons with disabilities.

Basic training:

This module offers a general training in Design for All and Universal Accessibility. It offers a global vision about the importance of this plan and the key aspects to consider. It serves as an introduction to better understand the rest of the contents. As it is a transversal module it can also be applied to educators from other disciplines. Like a traditional degree, these common contents shall be mandatory.

Specific training:

In this module, the specific contents on how to train in Design for All and Universal Accessibility in the Architecture and Civil Engineering degrees are developed. It includes common topics to both degrees. This module has optional content, to enable the choice of topics depending on the profile of the person who is receiving the training. Each university will also be able to adapt part of these contents according to the study plan that it is already developed.

Application and development training:

This final module aims to consolidate the training with practical tools that complement the theoretical contents of the previous modules through case studies, examples of good practices, common mistakes, ... There will be a greater interrelation with the person who is receiving the training, clarifying doubts and possible misunderstandings.

This training module includes the development or application of D4ALL in specific cases: analysis of good practices, study of existing needs, unique environments with specific requirements ... It will be carried out in a supervised personal work.

Different scenarios

Depending on the characteristics and conditions of each university, as well as the proposed objective, the training format can be specified in different ways. For this purpose, four specific scenarios are proposed, where the three modules contents are adapted in different ways:

- Training Congress.
- Lecture Series.
- Basic Online Course.
- Complete Training Course.

For these scenarios a possible development will be carried out as well as an analysis of the advantages and disadvantages of each of them.

3. D4ALL skills profile for educators

As an initial premise in this training, the definition of a Design for All skills profile is considered. D4ALL skills profile, includes the skills and knowledge in terms of D4ALL that any educator in the analysed university degrees must have.

General competences

The basic knowledge and skills (competences) which the educators must acquire in order to be able to introduce these principles at their lessons is indicated below:

- a) Knowledge of the relationships between the conditions of a person with a disability and use of the physical environment.
- b) Knowledge of the concept of D4ALL and accessible construction.
- c) The ability to apply the required rules and regulations governing the topics of Universal Accessibility and D4ALL.

Specific Competences

The specific knowledge in Architecture and Civil Engineering university degrees, focused on the design, construction and maintenance of the built environment is detailed below:

- d) The ability to introduce Universal Accessibility and D4ALL as transversal elements in the practice of urban and territorial planning.
- e) The ability to introduce Universal Accessibility and D4ALL as transversal elements in producing building projects.
- f) The ability to introduce Universal Accessibility and D4ALL as transversal elements in the execution of building works.

- g) The ability to perform the management of urban and territorial planning as well as building from the perspective of Universal Accessibility and D4ALL.
- h) The ability to perform the management and implementation of Universal Accessibility (U.A).

Each degree's syllabus content will be specified according to the specific subjects of its Study Plan.

Matrix table of contents

Below the contents of the training are developed in a generic way, without considering the subsequent form of delivery hereof. Therefore, these contents will serve as a basis for the specification of contents for each scenario.

Module 0: Introduction Training

- 0. **What** is the D4ALL?
- 1. **Why** is it interesting and necessary to be trained in this matter?

Module I: Basic Training

- 2. How to teach **Human diversity**: Needs and requirements
 - 2.1. D4ALL and U.A.; concepts and evolution;
 - 2.2. Fundamentals of ergonomics;
 - 2.3. Physical diversities: Needs and use of space;
 - 2.4. Sensory diversities (I): Visual. Needs and use of space;
 - 2.5. Sensory diversities (II): Hearing. Needs and use of space;
 - 2.6. Cognitive diversities (mental and intellectual): Needs and use of space;
 - 2.7. Aging and environment relationship.
- 3. How to teach **User-focused design**

- 3.1. For whom do we design? The starring role of the person during the project development;
 - 3.2. Universal Design: Concept and principles;
 - 3.3. Functional capacities and close space. Person-environment interrelation;
 - 3.4. D4ALL and U.A. as the genesis of a project;
 - 3.5. Methodologies for guaranteeing D4ALL and U.A.;
 - 3.6. Examples of good practices.
4. How to implement **Legal framework** and technical rules in D4ALL and U.A. in a creative and efficient way
 - 4.1. General legal framework on Universal Accessibility;
 - 4.2. Legislation and mandatory Accessibility regulations in urban public space;
 - 4.3. Legislation and mandatory Accessibility regulations in building;
 - 4.4. Legislation and mandatory Accessibility regulations in special facilities;
 - 4.5. Other reference standards on Accessibility in the built environment;
 - 4.6. Management of municipal licenses on Accessibility.

Module II: Specific Training (Architecture and Civil Engineering)

5. How to teach D4ALL and U.A. in **Urban Planning** and cities Mobility
 - 5.1. Vehicle-pedestrian coexistence. The city of people;
 - 5.2. Management of Accessibility from the Local Administration;
 - 5.3. Municipal Policies and Global Accessibility Strategic Plans;
 - 5.4. Specific intervention projects for improving urban accessibility.
6. How to teach D4ALL and U.A. in **Transport**
 - 6.1. Transportation infrastructures;
 - 6.2. Urban transport stops;

- 6.3. Designated parking spaces for people with reduced mobility;
- 6.4. Accessible organization of means of transport.
- 7. How to teach D4ALL in the Urban **Public Space**
 - 7.1. Streets for all. Pedestrian routes and crossing points;
 - 7.2. Urban elements: pavements, urban furniture and elements of urbanization.
- 8. How to teach D4ALL and U.A. in **structures**
 - 8.1. Bridges, walkways ...
 - 8.2. Underground paths: Tunnels, Parking lots...
- 9. How to teach D4ALL and U.A. in **natural environments** (landscaping)
 - 9.1. Parks and gardens;
 - 9.2. Beaches.
- 10. The understanding of built space (**Wayfinding**)
 - 10.1. Accessibility and spatial orientation. Concepts and strategies;
 - 10.2. Orientation in indoor spaces;
 - 10.3. Orientation in outdoor spaces.
- 11. How to teach D4ALL and U.A. in the **key elements of the project**
 - 11.1. Level changes: stairs, ramps, lifts, platforms, escalators...
 - 11.2. Transition points: Doors;
 - 11.3. Sanitary spaces: toilets, showers and changing rooms.
- 12. How to teach D4ALL and U.A. in **housing**
 - 12.1. Flexibility of the domestic space over time (different situations).
New housing projects (single family and collective);
 - 12.2. Intervention in existing building: common areas, interior of the house.
- 13. How to teach D4ALL and U.A. in **environmental conditions**
 - 13.1. Lighting (natural and artificial);
 - 13.2. Acoustics.

- 13.3. Thermal conditioning (temperature, humidity ...)
- 14. How to teach D4ALL and U.A. in **public use buildings**
 - 14.1. Sport facilities: sport centres, swimming pools ...
 - 14.2. Buildings of great concurrence: stadiums, theatres ...
 - 14.3. Administrative, cultural and educational buildings;
 - 14.4. Work centres: offices, factories ...
- 15. How to teach D4ALL and U.A. in the **existing built environment**
 - 15.1. Reasonable Adjustments;
 - 15.2. Accessibility during the works.
- 16. How to teach D4ALL and U.A. in **construction**
 - 16.1. Materials;
 - 16.2. Constructive details.
- 17. How to teach D4ALL and U.A. in **Heritage**
 - 17.1. Monuments and Protected Buildings;
 - 17.2. Historic old quarters.
- 18. How to teach D4ALL and U.A. in **safety**
 - 18.1. Evacuation in emergency events;
 - 18.2. Prevention of workplace risks.
- 19. How to teach the application of **new technologies** on D4ALL and U.A. in the built environment
 - 19.1. Technological applications for Accessibility in the urban space;
 - 19.2. Domotics.
- 20. How to teach the **Management** of D4ALL and A.U.
 - 20.1. Maintenance of D4ALL and A.U. (preventive and corrective);
 - 20.2. Management D4ALL and A.U.: policies, protocols ...
 - 20.3. Conformity assessment in D4ALL and A.U.;
 - 20.4. Consulting in D4ALL and A.U.: how to make technical reports.

Module III: Application Training

According to the criteria of each university, the contents of this final module can be developed in two ways:

- a) Every teacher chooses a theme of application and development of the D4ALL of the list of topics offered by each University.
- b) Every teacher proposes a specific topic application and development of D4ALL, which will be validated by the University

. According to the different scenarios, all this will be specified in workshops and/or a personal work.

An example of an initial kit to bid could be:

- a) **Human Diversity** and its relationship with the built environment around it.
- b) Case study of D4ALL in the **Urban Spaces** (street, square, neighbourhood...): specific needs, comparative with other environments ...
- c) Case study of D4ALL in **Public Use** buildings or large facilities (airport, stadium, skyscraper ...): specific needs, comparative with other environments ...
- d) Case study of D4ALL in the **Housing** (houses, flats, apartments, hotels...): specific needs, comparative with other environments ...
- e) Application of the **Technical Regulation** on accessibility in singular cases: car parks, parks, heritage monuments ...
- f) **Wayfinding** and spatial orientation. Decision points in outdoor and indoor environments. Design and use of pictograms
- g) D4ALL and the adaptation of **existing construction** (a bridge, toilets for public use, building without ramp / elevator, ...)
- h) **Specific Topic**, by choice, on some other topic of interest about D4ALL and A.U.: technology and accessibility, evacuation and accessibility, constructive materials and accessibility, management of D4ALL and A.U. ...

Evaluation

The training course will have an individual evaluation. Depending on each university, this evaluation can be a test, a personal research work or any other alternative that is considered valid to evaluate the contents of each module.

4. Analysis of the different scenarios

Training Congress Contents

Developing

The first scenario that is studied is a Training Congress in D4ALL and A.U. for educators, in case the university prefers to concentrate the training on site in a short time.

In this scenario, the content development is estimated at 12-16 hours, to be taught in two or three days. Each day can be developed in different speeches, communications or workshops of different duration, depending on the need of each topic. The structure of each module is as follows:

- Introduction training: 1-2 hours
- Basic training: 3-4 hours
- Specific training: 5-7 hours
- Application training: 3-3 hours

Advantages and disadvantages

<i>Pros</i>	<i>Cons</i>
<ul style="list-style-type: none"> ▪ It will be shorter ▪ Can be repeated 2 or 3 times in a year ▪ Ease of attendance 	<ul style="list-style-type: none"> ▪ Limited attendance ▪ Difficult to give a wide transfer of knowledge

Lecture Series contents

Developing

The second scenario that is studied is a Lecture Series in D4ALL and A.U. for educators, when the university prefers to extend, throughout the course, a series of face-to-face sessions.

In this case, the content development is estimated as a conference package with 6-8 thematic lectures, to be taught over a specific period of time (a quarter or a course). The duration of each session will be specified by each university (eg 2 - 3 hours / session). They should address both theoretical knowledge and methodological tools and combine the contents of the different modules in the same session. The structure of each module is as follows:

- Introduction training: 1 session (1.5 hours)
- Basic training: 1-2 sessions (or 1.5-3 hours)
- Specific training: 3-4 sessions (or 4.5-8 hours)
- Application training: 1 session (1.5 hours)

Advantages and disadvantages

<i>Pros</i>	<i>Cons</i>
<ul style="list-style-type: none"> ▪ More transferred info ▪ Systematic attendance ▪ Not too much time consuming 	<ul style="list-style-type: none"> ▪ Only interested colleagues will attend; some lectures might be lost

Online Course contents

Developing

The third scenario studied is an Online Course in D4ALL and A.U. for educators whose university prefers to offer online training to educators.

In this case, the content will be developed in Online Training Capsules (OTC), using online training pedagogy and methodology. To do so, it will combine short videos (capsules of 10-15 minutes) with reference material to complete the training on a personal level.

In this scenario, the personal work is particularly relevant. The time of the online training capsules (OTC) is not comparable with the total time of training, as it includes personal study. The development of the content is estimated at 32 to 50 OTC of about 5-10 minutes each.

The structure of each module is as follows:

- Introduction training: One workshop (or 1-2 OCT)
- Basic training: 9-14 OTC
- Specific training: 16-24 OTC
- Application training: 6-10 OTC

It may include the possibility of additional joint sessions (1 or 2 online meetings lasting 60 minutes) for solving doubts or debate on a topic of specific interest.

Advantages and disadvantages

<i>Pros</i>	<i>Cons</i>
<ul style="list-style-type: none"> ▪ Easy to handle ▪ Widest audience ▪ Easy update of capsules 	<ul style="list-style-type: none"> ▪ Personal study cannot be verified ▪ Practical training cannot be effectively imparted online ▪ Limited interaction

Complete Course contents

Developing

In this last scenario, the training is presented as a complete on-site training course, for those situations in which the University wants to offer a complete training throughout the course and in a face-to-face manner.

In this case, the content development is estimated at 50-70 hours, to be taught throughout the course (e.g. on weekly basis). The duration of each session will be specified according to the convenience of each university to meet the objectives, and adapt better the format to their needs. The practical training module can be taught at the end or mixed with the previous two, according to the criteria of each university. The structure of each module is as follows:

- Introduction training: 2 – 3 hours
- Basic training: 8 - 12 hours
- Specific training: 25 - 35 hours
- Application training: 15 -20 hours

Advantages and disadvantages

<i>Pros</i>	<i>Cons</i>
<ul style="list-style-type: none"> ▪ Full training ▪ Full coverage of topics ▪ Full interaction 	<ul style="list-style-type: none"> ▪ Very time demanding ▪ Difficult/impossible commitment of colleagues. ▪ Organising effort

Summary table

The following table summarizes the time commitment, structured by modules, for each of the different scenarios

Modules	TC Training Congress	LS Lecture Series	OC Online Course	CC Complete Course
Total	12-16 h (2-3 days)	6-8 speeches	32-50 OCT (online learning capsules)	50-70 on -site hours
Module 0 (Intro. Training)	1-2 h (2-3 days)	1 workshop	1 workshop or 1-2 OCT	1-2 workshops or 2-3 on -site hours
Module I (Specific Training)	3-4 h (2-3 days)	1-2 speeches	10-14 OCT	10-15 on -site hours
Module II (Common Training)	5-7 h (2-3 days)	3-4 speeches	16-24 OCT	25-35 on -site hours
Module III (Practical Training)	3-3 h (2-3 days)	1 speech	6-10 OCT	15-20 on -site hours

5. Results: The fifth scenario, Mixed course

After the development and study each scenarios' pros and cons , the project team members concluded the need to create a fifth scenario, taking some aspects from the different initial modules, in order to obtain a feasible result.

Main characteristics:

This training plan will have a mixed character, with face-to-face and online parts, combining lectures and talks with workshops and online teaching capsules.

There will be an independent evaluation of each module, with the possibility of obtaining a certificate when passing it.

This progressive character will allow each university or lecturer to choose which level of training is the most appropriate.

Structure:

Basic contents of D4ALL

This module will aim to introduce and raise awareness in Accessibility and D4ALL.

Due to its basic nature, it will have a mandatory character for all teachers (the other modules cannot be studied if this is not taken/passed first)

It will combine the theoretical contents (to develop the foundations in Accessibility and D4ALL) through lectures with practical contents through works and workshops (to guarantee an effective awareness on the subject).

A possible scenario could be:

1. An initial introductory awareness workshop on Accessibility and D4ALL.

2. A pack of online capsules (10-14 OTC of 5-10 minutes each) on common contents -as a MOOC- (see matrix content).
3. An online evaluation test of the entire module.

With the successful completion of the test a certificate of "Basic Training in Accessibility and D4ALL" will be obtained.

Specific contents of D4ALL for Architecture and Civil Engineering

This module would correspond to Module II of Specific Training for Architecture and Civil Engineering.

It will have an open character with two options:

- a) The choice of half of the contents.
- b) The choice of the totality of the contents.

Each teacher can choose which option he prefers according to their needs, with a different recognition at the end (different certificate).

The contents will correspond to 24-36 OTC (of 5-10 minutes each) according to the topics described in module II of the Matrix Content.

This module will be completed with two practical classes or workshops (face-to-face) on specific topics. Example: visit and technical analysis (in situ) of a built environment accessibility (public space or a building).

The module will end with a test, differently designed depending on the chosen content. If the test is passed, a new title will be obtained (depending on the chosen option).

- a) "Basic training course in Accessibility and D4ALL in Architecture and Civil Engineering".
- b) "Advanced training course in Accessibility and D4ALL in Architecture and Civil Engineering".

Practical Contents of D4ALL

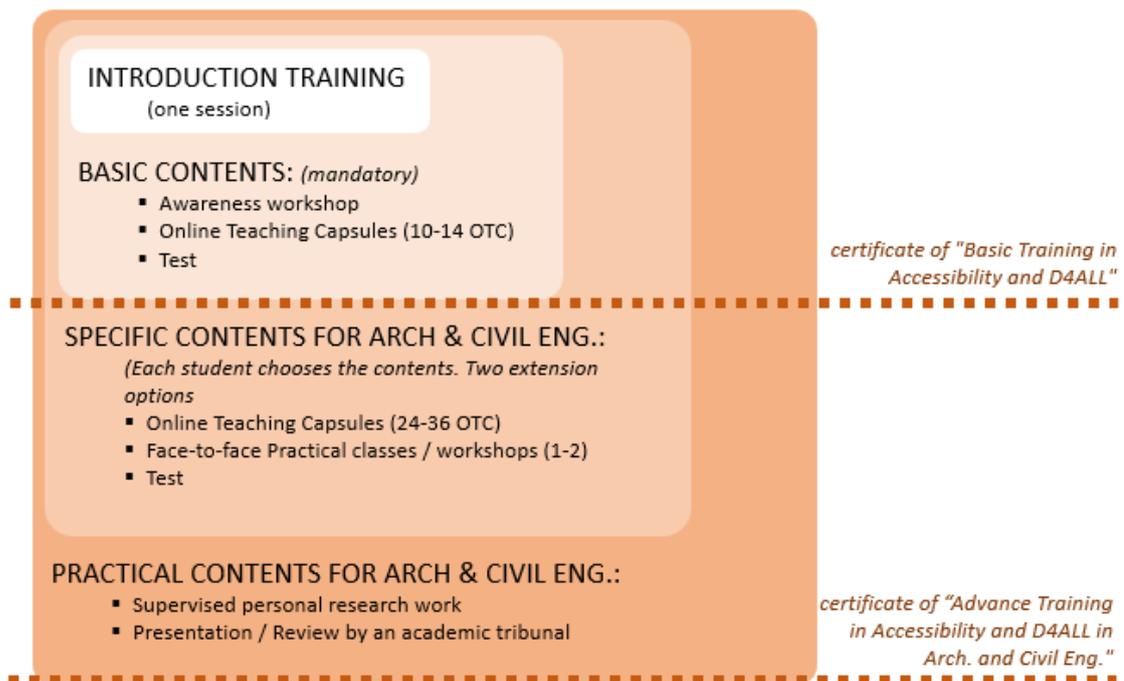
This module will have a practical approach, which will be developed through a supervised personal research work, on a topic chosen from the previous module.

It will have a minimum content specified by each university: extension of the work, number of supervised tutorials,...

The work will be subsequently evaluated by a teacher or panel other than the tutor.

After the successful finalization of this work, the title of "Trainer in Accessibility and D4ALL in Architecture and Civil Engineering" will be obtained.

Summary scheme:



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