

OPEN ACCESS CONTENTS ON DESIGN FOR EQUALITY, DIVERSITY AND INCLUSION FOR HIGHER EDUCATION PROGRAMMES

D 2.4.1. Virtuous contents and methodologies for promising replications into digital environments

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1. Introduction

This report was developed within the framework of WP2 - "Research and analysis of teaching contents on Design and EDI" and contains data refinements and interpolations made by project partners as a part of the work for A 2.4 – "Identification of virtuous contents and methodologies for promising replications into digital environments". In general, WP2 aims to define, in the context of Design studies in the HE sector, existing practices and tools used to develop contents on Design for EDI, as well as investigations on inclusive teaching models and appropriate technologies to create inclusive learning environments.

Specifically, this report contains reflections and strategic developments about the translation of EDIrelated concepts into digital teaching and learning environments. Methodologically, qualitative and quantitative data gathered in the previous deliverables (D 2.1.1., D 2.2.1., and D 2.3.1.) are used to produce insights for digital teaching and learning environments. Thus, virtuous contents and methodologies for replications into digital teaching and learning environments are presented. An interpretative map is created to produce clear recommendations about the sets of digital tools to be used in Design and Design-related programmes, as well as their compliance with the delivery of EDI contents. Guidance and references for creating inclusive learning environments will therefore be proposed to achieve complementary elaboration.

A 2.4. involved ASP, UNICH, STU, ELISAVA, and CUMULUS (ASP is the WP2 Leader) and results presented in this report will serve as a baseline for the initial activities planned of WP3, along with concluding the whole research stage of WP2.

An outline of the A 2.4. activities and their implications within the EDIDesK project is shown below.

Framework for A.2.4. in the WP2		
Effect	Contents and methodologies on Design for EDI for an application into	
	digital teaching and learning environments.	
Quantitative indicators (as per	Quantitative indicators:	
KPI, see D.1.1.2.)	• N. 15 matches created from the combination of teaching contents on Design for EDI and digital tools to be used.	
F44:		
Efficacy	Interpretative results deriving from qualitative analyses of best practices	
	made through joint discussions and collaborative efforts that provide	
	insights for knowledge progressions (digital environments).	
Expected Results	Interpretative map.	
Links with Activities (As of WP2)	 Harmonised contents and methodologies to work with Design for EDI within digital teaching and learning environments. 	
	• Elements for the progression of teaching methodologies and knowledge transfer in the field (inclusive digital teaching and learning environments).	
Impacts	Data developed in A 2.4. concludes the activities planned in WP2, which are fundamental to progress with experimentations set for WP3.	

2. Aim of Report

The aim of this output was to develop an interpretative map showing the set of digital tools to be used to deliver suitable EDI-related teaching and learning contents to be used in Design and Design-related programmes, as well as recommendations for creating inclusive learning environments. Analyses

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about the universal use for UG and PG programmes were considered. To achieve this objective and set up the intervention methodology, the following macro-objectives were defined:

- To explore features for the implementation of the work within digital teaching and learning environments.
- Assessing the relevance of the culture on Design for EDI into digital teaching and learning environments.
- To identify a selected group of relevant teaching and learning methodologies, and their matches with contents on Design for EDI, to be used into digital teaching and learning environments.
- To provide qualitative and quantitative interpretation of results previously found and documented throughout WP2 so that new open knowledge can be produced.

The definition of these macro-objectives made it possible to define the intervention methodology and draw the research's boundaries.

3. Methodology

The methodology consisted in a logical sequence of actions and research activities aimed at defining the most relevant matches between teaching contents applied to digital teaching and learning environments, evinced from common discussions resulting from analyses performed in A 2.1. and A 2.3., against relevant teaching and learning methodologies identified in A 2.2. and partially discussed over A 2.3. The research methodology used in this process is shown below:

STAGE 1: Identification of best contents for a replication into digital teaching and learning environments

The first stage was based on an analysis of the list of teaching tools produced in A 2.2. in relation to the list of teaching contents. The analysis aimed to determine which tools can fulfill specific educational goals. Similarities were highlighted by comparing the aims of the teaching contents with those of specific tools. Tools vary in complexity, so the analysis focuses on determining whether they cover the entire design process or a specific part of it with a focus on certain EDI-related aspects, a particular design area, or just specific aspects involving EDI. This analysis allowed to produce a list of tools with recommendations on how they can be incorporated into curricula and which teaching content they can support.

STAGE 2: Identification of best methodologies for the implementation of contents into digital teaching and learning environments

The second stage was based on analysis of how each teaching methods/approach produced in activity A 2.3. can be supported by digital tools and environments and how it can create an engaging and inclusive teaching and learning environment. It became a complementary element of the tables produced in report D 2.3.1. with the list of teaching methods (see Tables 4 and 5).

STAGE 3: Creation of the interpretative map

The third stage involved gathering all the produced information in the form of a matrix (based on the interpretative map produced in A 2.3.) and an interactive database (based on the database produced in A 2.2.), where teaching contents and teaching methods were matched with the list of tools prepared in activity A 2.2.

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STAGE 4: Creation of a competency framework for students

Based on the analysis from previous research activities (desk research, interviews with teaching staff, and developed teaching contents), a list of skills that students should gain during their education was prepared. Further analysis and consultation with all partners allowed for a comprehensive and detailed elaboration.

The competency framework for students and the interpretative map with teaching contents and digital tools show comprehensive elaborations. Both are divided into three categories of information: attitude, knowledge, and abilities/skills. They create a complex picture of aims and means in the educational process and their characteristics.

4. Integration of Digital Tools Supporting EDI (Education for Equality, Diversity, and Inclusion) into the Teaching Modules – The Interpretative Map

The wide range of digital tools and resources available online offers the incredible opportunity to promote Equality, Diversity, and Inclusion (EDI) into modern Higher Education systems. This is particularly relevant when it comes to Design studies, where such apparatus depicts a fundamental asset for designers and researchers. Accordingly, various digital knowledge bases, manuals, handbooks, and educational pathways are available. They differ in complexity – some cover the entire design process, while others focus on specific EDI aspects. Some sets can be purchased in physical form or accessed online. However, to incorporate them into teaching modules, students' abilities and awareness must be carefully considered.

Some materials include templates and worksheets that can be used online via tools such as Miro and Figma or downloaded as PDFs for printing. These can be used for individual student work or as a support for discussions and teamwork during classes. Among available tools, interactive games can be used to support the learning process, either by focusing on instant interaction and group engagement (e.g., Kahoot) or by allowing students to conduct simulations of their projects.

There are also tools that cover the entire design process and support various design activities. Due to their flexibility, these tools can be used to deliver a wide range of content.

To provide convergence between studies performed in the WP2 and to achieve the pre-identified project goals, the database discussed in report D 2.2.1 was analyzed and its use was assessed for specific design-oriented contents on EDI and specific teaching methods to be performed within digital teaching and learning environments.

The insights from the analysis are divided into three sections:

- **4.1 Categories of Tools** This section provides a review of available tools and platforms, explaining their relevance to EDI-oriented design education. It presents an overview of their usefulness and how they can be integrated into digital teaching and learning environments.
- 4.2 Teaching and Learning Methodologies Matched with Tools and Digital Environments This section focuses on digital tools, including those not specifically oriented towards EDI, that can support various teaching methods. For each teaching method, a recommended set of digital tools is provided.
- **4.3 Interpretative Map** This section extends the initial database of tools by adding new categories indicated in the report D 2.3.1, which covers teaching methods and design-oriented content on EDI. The updated database enables the identification of correlations between different tools and methods.

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Section 4.3 also includes a description of the Interpretative Map in the form of a matrix – a table where teaching content is matched with teaching methods.

4.1. Categories of Tools

Introduction to EDI knowledge and EDI-related design process

Tools like knowledge bases that include the presentation of the entire design process help introduce its complexity and the multifaced aspects of EDI. The Inclusive Design Toolkit (Microsoft, Cambridge University) or The Inclusive Design Guide (OCADO University) support outlining the design process, and checklists or worksheets help to organize and control individual stages, which can be particularly useful depending on the user's level of experience. All the mentioned toolkits focus on an educational process centered on EDI. They are supported by definitions, examples, or videos explaining selected topics and can be used at different learning stages. Worksheets that are available in these toolkits facilitate discussions, group work, reflection, and the building of shared knowledge. Stanford University's tool, Liberatory Design Toolkit, supports empathy and critical thinking, while the Digital Ethics Compass Toolkit focuses on ethics and philosophy, helping users make ethical decisions. The Social Impact Design (SID) or The UNa Lab tool focuses on social impact and participatory aspects of the design process. 18F Method Cards allow verification of processes from different angles. Each of them can be used depending on the level of education, type of subject, or students' readiness.

Examples:

- Inclusive Design Toolkit by Microsoft
- Inclusive Design Toolkit by Cambridge
- The Inclusive Design Guide by Ocado University
- Social Impact Design (SID): Focuses on social impact and participation in the design process
- Liberatory Design Toolkit
- Operationalizing Inclusive Design (by Google e.g. "Design Sprint")

Building awareness on EDI in an interactive and engaging way

Tools for building awareness and empathy, such as game cards, interactive surveys, and templates on platforms like Miro, help users understand and identify exclusions, by creating scenarios or analyzing a specific context (e.g. Inclusive Design Toolkit - POLIMI). The Digital Ethics Compass Toolkit offers a fresh perspective on ethics and philosophy, enabling users to make decisions on ethical issues. It helps build attitudes by posing questions and highlighting three types of civilizational challenges. The content is distinctive. Inclusive Design Toolkit - Sub tool: Exclusion Calculator Lite v2.1 includes exclusion calculators that calculate the degree of exclusion and help to understand the impact of it. Introducing the Inclusive Signs provides essential information needed to generate meaningful meta-design insights, ideas, and concepts. Conceptual insights belonging to Social Inclusion are contained in 60 descriptive cards. Another tool, Cards for Humanity (Web-based application), also helps to broaden the perspective of the EDI approach and advocate inclusive design. There are two types of cards - ones that describe a user, and ones that describe a diverse range of needs. These cards combine to set up a variety of scenarios to help test your product, service, or user journey from a different perspective.

Leading an EDI topic with tools that enhance interaction between students (and stakeholders) and allow for sharing individual opinions can deepen understanding of EDI from different angles.

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Examples:

- Inclusive signs
- Cards for Humanity
- Digital Ethics Compass Toolkit
- Inclusive Design Toolkit Sub tool: Exclusion Calculator Lite v2.1 (Cambridge University)
- Inclusive Design Toolkit POLIMI

Teamwork and including stakeholders in research and design processes

Tools that support team communication and integration of people outside the university into the process are crucial for effective collaboration. Examples include tools that support building diverse teams, allowing members to support each other and turn limitations into team success. Tools like the UNa Lab and Inclusive City Co-design Kit are dedicated to participatory design and support students in creating inclusive projects. EDI Toolkit for Researchers (teachers) by Newcastle University is a set of practical resources, designed to help researchers to engage with and understand equality, diversity, and inclusion (EDI). It aims to empower people, particularly those who supervise students and manage research teams, to really value diversity and promote inclusivity within their teams to improve colleague and student experience, as well as the quality of the research itself.

There are also tools dedicated to enhancing the communication between students while they are in the teamwork process.

Examples:

- UNa Lab
- *Inclusive City Co-design Kit:* Dedicated to participatory design.
- EDI Toolkit for Researchers (teachers) by Newcastle University

Learning by doing and experimental approach

Tools supporting the learning by doing method include games and 3D programs for creating and prototyping solutions, such as Makers Empire and Minecraft Education. The Gamestorming game collection offers various games to be used for the creative processes.

Examples:

- Games and 3D Programs: For creating and prototyping (e.g., Makers Empire, Minecraft Education).
- Gamestorming: Gamestorming is a set of co-creation tools used by innovators around the world.

Inclusive learning

Some tools have simpler interfaces, allowing for quick application and a lower entry threshold, while others are more complex and require a careful introduction from teaching staff. Microsoft offers userfriendly graphic tools (Inclusive Design Toolkit) that gradually introduce users to different aspects, while Cambridge University tool (Inclusive Design Toolkit) may require more effort and time for the teacher to introduce how to use it for the students. This kind of knowledge baseline requires more time to understand its value and how to use it in the educational process. Tools for Taking Action toolkit focuses on the well-being of users. But all the mentioned examples can be used by students later on for different projects.

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It is important to equip educators with knowledge and skills in specific learning disorders. EID Toolkit for Teaching offers advice on conducting classes and preparing user-friendly documents. FLOE Inclusive Learning is a collection of methods for teachers to create inclusive materials. Tools supporting work with students who do not study in their first language, such as ToFIE - Tools for Inclusive Education, are also particularly valuable. Another tool, Voice into Action, is focused on students' needs to decide about their education and democratizing the educational process. It presents methods how to include students in the decision-making process. It is also a proper tool to conduct with students' self-reflection exercises.

Examples:

- The FLOE Inclusive Learning Guide Book
- VOICES INTO ACTION: A Framework for the Meaningful Participation of Learners and Families in Educational Decision-Making
- ToFIE Tools for Inclusive Education [EU project]
- EID Toolkit for Teaching
- Tools for Taking Action

All these tools together create a rich support ecosystem for EDI education, enabling the development of knowledge, awareness, empathy, and effective collaboration in diverse teams. Nevertheless, it is important to understand the cultural context of the university and students, as it can influence how the tools are used or may need to be modified to be more suitable. The teacher, as a moderator and initiator of the educational path of students, plays a crucial role in adapting and facilitating these tools effectively.

4.2 Teaching and Learning Methodologies Matched with Tools and Digital **Environments**

To provide a better understanding of how digital tools and platforms can be incorporated into teaching practice, further analysis was conducted. The structure was based on selected teaching methods, with the aim of matching a suitable set of digital tools and platforms for each method. The outcome of this analysis is presented in Table 1.

Table 1 - Suitable teaching and learning methodologies to properly deliver EDI contents matched with tools and digital environment

and digital er	vironment	Motivation	Suggested Methodologies/Approaches, Categories and Sub-Categories of Toolkits/Tools	Comments
1 Design process	with and solving	develops problem- solving skills, self- directed learning, and the application of	Suggested Methodologies/Approaches: Double Dimond; Human-Centred Design (HCD); Design Thinking; Agile Design Process; Iterative Process; Research-through- Design.	The design process in problem-based learning (PBL) is a complex method that requires an extended period of time. Digital tools can significantly enhance this educational process,

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providing templates, design process methodology. Categories of Selected worksheets in the form of Toolkits/Tools (as per PDF files, or interactive Databases 1,2,3 from D 2.2.1.): online boards. These tools User research; Heuristics; often include introductory Understanding user diversity; materials for teachers and learners, such as articles or Brainstorming; Evaluation; Prototyping (Method cards, etc.). short videos. **Sub-Categories and Others** The Inclusive Design Toolkit Recommended Toolkits/Tools: by Cambridge University, for Inclusive Design Toolkit example, offers the Inclusive (Cambridge University); Inclusive Design Canvas, which can Design toolkit (Microsoft); be downloaded and Operationalizing Inclusive Design completed. A more (Google, rif. Design Sprint); interactive and engaging Inclusive design toolkit format is offered by the (ONTARIO); The Inclusive design toolkit by Tangity, Design Guide (IDRC, OCAD available on MIRO, or University): Inclusive Signs Operationalizing Inclusive (Rossi E.); 18F Method Cards; Design by Google (Design UNaLAB Toolkit: Tools for Co-Sprint), available on MURAL. creation (EU Project); Liberatory Tools include definitions and Design Toolkit (Stanford diagrams that present design University); Digital Ethics stages, along with dedicated Compass Toolkit (Danish Design exercises for each stage to Centre). help understand the steps and the inclusive approach. These exercises can be completed individually or by a team. Nevertheless, this approach requires support to understand the process first (visualizations of the process), then to effectively collect data for further analysis, and finally to easily present the findings and insights to the teacher and other students in the team. 2 Design This method Suggested **Project-Based** To enhance and deliver the management Learning with develops an Methodologies/Approaches: design management fosterina understanding of the Human-Centred Design; Inclusive teaching method (project-Management skills commercial context Design; Design Thinking; Live based learning), educators involves guiding of project Projects (with commercial can utilize a variety of digital stakeholders); Field Analysis. students through implementation. tools that assist students in the process of organizing the process, developing a Categories of Selected understanding its different project from Toolkits/Tools (as per components, and involving Databases 1,2,3 from D 2.2.1.): all necessary stakeholders. concept to implementation Managing the process; Design These tools include while emphasizing process; Design Process checklists and maps in the design principles Checklist; Worksheet. form of worksheets (such as and management interactive online boards like strategies. Sub-Categories and Others the Business Model Canvas Recommended Toolkits/Tools: template available on the Inclusive Design Toolkit MIRO platform, online (Cambridge University) - Sub spreadsheets like the Design tool: Design process checklist. Process Checklist, and IDEA Process Management tools. Audit by Cambridge University), which, when

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				filled in by students, highlight the required information. Additionally, there are other platforms that help in organizing information and allow for the visualization of design process stages, adding relevant stakeholders, and planning all necessary resources (e.g., Trello, Free Online Gantt Chart Software). The first example refers to prepared structures that can be filled in to help students think strategically. The second example refers to tools that support being actively engaged in the process, allowing for the building and updating of the process over time.
ap	ward udent	develop solutions based on their	Suggested Methodologies/Approaches: Human-Centred Design; Inclusive Design; Design Thinking. Categories of Selected Toolkits/Tools (as per Databases 1,2,3 from D 2.2.1.): Understanding User Diversity; User Capability; Personas Methods; User Research; Empathy trial (tool); Envisioning tool; User Capability; Exclusion calculation. Sub-Categories and Others Recommended Toolkits/Tools: Inclusive Design Toolkit (Cambridge University) - Sub tool: Digital personas; (C.3) Microsoft: Inclusive design toolkit - Sub Tool: Inclusive Design for Cognition Screeners.	Digital tools can foster individualized approaches that balance students' knowledge levels and allow them to work at their own pace, both during and outside of class time. These tools provide personalized learning experiences, ensuring that each student can develop their skills and understanding according to their unique needs. Prepared tools like the Design Toolkit by Microsoft or the Inclusive Design Toolkit by Cambridge University include materials such as articles, videos, or worksheets that students can work with during class or

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situational contexts. The

4 Experiential

activities.

fieldwork.

approach

toolkit's structured exercises enhance critical thinking, ensuring students not only understand the design process but also develop the ability to analyze and evaluate information effectively. Another valuable resource is the Inclusive Design Toolkit by Cambridge University. This toolkit introduces inclusive design, explaining fundamental concepts and stages of the design process. It includes dedicated tools for each stage, allowing students to practice every element of the process. This is particularly important for teams with students who have no prior experience with inclusive design, ensuring that everyone can participate and learn effectively. These digital tools not only help in balancing the knowledge levels among students but also encourage self-paced learning and continuous engagement with the design process. Learning through | Experimenting helps | Suggested The experimental approach **experience**, often students to better Methodologies/Approaches: requires hands-on activities. involving hands-on understand human Human-Centred Design: Inclusive simulations, and the digital diversities (i.e. Design: Design Thinking: System environment allows for its simulations, simulations and trials Thinking; Iterative Process; development only to a experiments, or led by students that Research-through-Design. limited extent. While there create disabling are simulators that can scenarios to Categories of Selected demonstrate how websites experience) and Toolkits/Tools (as per appear to people with visual reduces the gap Databases 1,2,3 from D 2.2.1.): impairments or calculators between theories Understanding user diversity; that provide feedback on the and practice. In this Empathy trial (tool); Envisioning inclusivity of specific way, students can tool; User Experience; Cognitive designs, these tools serve experience first-hand demands. mainly as supports. difficulties like final However, the core of this users do. **Sub-Categories and Others** approach necessitates real-Recommended Toolkits/Tools: world experiments involving Inclusive Design Toolkit users, stakeholders, and (Cambridge University) - Subprototypes. tools: Digital Personas and Family set Personas; Capacity Methods such as Loss Simulation; Exclusion netnography, which involve Calculation, Understanding User interacting with users online. Diversity. can be introduced by teachers for specific design

> problems but are limited in their applicability. They require specific

methodologies and may not

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	Using real-world scenarios to facilitate learning. This method encourages students to analyse and discuss complex situations, make decisions, and solve problems as they would in real-life contexts.	critical thinking, analytical, and decision-making skills.	Suggested Methodologies/Approaches: Human-Centred Design, Inclusive Design, Design Thinking; Scenario-led Design. System Thinking. Categories of Selected Toolkits/Tools (as per Databases 1,2,3 from D 2.2.1.): User research; Social topics; Ethics by Design; Understanding user diversity; Evaluation; Testing. Sub-Categories and Others Recommended Toolkits/Tools: Inclusive Design Toolkit (Cambridge University) sub-tool: Digital Personas and Family set Personas; Inclusive Design toolkit (Microsoft); (C.1) Sub Tool: Inclusive activity cards; EDI by Design Cards (Nottingham University).	information about it is presented to students. This can take the form of games, cards, or videos where additional questions or tasks related to the case study are introduced. The effectiveness lies more in the structured nature of planned exercises where presenting the case study is a part, rather than being solely dependent on the digital environment. Teachers can utilize readymade videos and worksheets to engage students during classes or for individual study between sessions. Additionally, interactive online boards are effective for gathering insights from the analysis of specific case studies, facilitating sharing among students and teachers alike. These tools not only enrich the learning experience but also encourage collaborative exploration and deeper understanding of complex topics.
6 Workshop's methodology	Workshops facilitate intensive engagement through focused tasks within a set period of time. It can include use of artifacts like frameworks, cards specially design for EDI education etc. Workshops involve interactive activities, group discussions,	to enhance learning, foster collaboration, and provide opportunities for discussion and exchange of ideas, perspectives, approaches. This allows to work effectively with interdisciplinary groups and build	Methodologies/Approaches: Human-Centred Design, Inclusive Design, Design Thinking; Live Projects (with commercial stakeholders). Categories of Selected Toolkits/Tools (as per Databases 1,2,3 from D 2.2.1.): Co-design; brainstorming; Design card-based tools. Sub-Categories and Others Recommended Toolkits/Tools:	between them are crucial aspects. This method demands high levels of focus within specific timeframes while delivering targeted content. Therefore, the role of the moderator is pivotal,

learning from each other and handson exercises, allowing participants to actively engage with the material and apply what they learn in a practical context.

It also can include teaching through questioning, where the teacher poses questions to stimulate critical thinking and draw out ideas and underlying assumptions.

Design toolkit (POLIMI); Microsoft: Inclusive design toolkit their educational objectives. Sub Tool: Inclusive activity cards; Inclusive Signs (Rossi E.); Moreover, moderators can EDI by Design Cards (Nottingham University); Cards for Humanity (FROG Design); Inclusive Design Works (google).

for methods that best suit

enhance their efforts in online workshops by utilizing engaging, game-based, interactive tools. Examples include Cards for Humanity and EDI by Design Cards, which provide specific content on Equality, Diversity, and Inclusion (EDI) and guide students through structured activities.

Online interactive boards are also highly beneficial. They allow teachers to prepare worksheets, instructions, illustrations, and other materials to outline the workshop structure and exercises, while also providing workspace for students to collaborate and contribute. These activities are typically supported by online video conferencing, which facilitates real-time interaction and discussion among participants. Rich data base of different workshop strategies is provided by UNaLAB platform (https://unalab.enoll.org/), where teachers can search for methods that will be the most suitable for their educational aim.

7 Inclusive learning environment students to

This approach empowers express themselves according to their interests and learning styles, thus enhancing the effectiveness of effectiveness of teaching and learning.

The approach can be delivered by diverse types of presentation methods and encouraging active participation. Students are engaged in various activities such as

This approach empowers students to express themselves according to their interests and learning styles, thus enhancing the teaching and learning.

Suggested Methodologies/Approaches: UDL Method (Universal Design Learning Method); Inclusive Design.

Categories of Selected Toolkits/Tools (as per Databases 1,2,3 from D 2.2.1.): User Experience; Cognitive demands; Co-creative naturebased solutions.

Sub-Categories and Others Recommended Toolkits/Tools: Microsoft: Inclusive design toolkit - Sub Tool: Inclusive Design for Cognition: Worksheet: and Sub Tool: Inclusive Design for Cognition Screeners; UNaLAB Toolkit: Tools for Co-creation (UNALAB); EDI Toolkit for Researchers (teachers) by

Inclusive education is significantly enhanced by the digital environment, offering various tools and resources that cater to diverse learning needs and promote accessibility for all students. Here's how the digital environment contributes to inclusive education:

Accessibility Tools: Digital platforms and tools provide accessibility features such as screen readers, closed captioning, and adjustable text sizes, ensuring that students with disabilities can access educational content on an equal footing with their peers.

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		empathic simulation exercises, on-site surveys, and discussions. They are also given the autonomy to choose tasks and processing methods, whether individually or in groups, and to select their preferred format for final elaboration and presentation, be it written, audiovisual, or graphical.		Faculty Toolkit (Humber College's); Tools for taking action (Stanford University); IDEO - Design Thinking for Educators; SNOW Inclusive Learning & Education- (IDCR, OCAD) [For more information see database 2 and 3].	resources, including blogs, multimedia content, interactive simulations, and virtual field trips. This variety supports inclusive teaching practices by presenting information in multiple formats that cater to different learning preferences. Professional Development: Digital platforms provide opportunities for educators to access professional development resources and training in inclusive teaching strategies. Online workshops, webinars, and communities of practice allow educators to learn and implement best practices for supporting diverse student populations.
8	doing	Learning by doing emphasizes hands-on experience and active participation in the learning process. Rather than passively receiving information, students engage directly in activities, experiments, or real-world tasks.	more deeply, and retain knowledge more effectively by applying what they have learned.	Human-Centred Design, Inclusive Design, Design Thinking; Iterative Process; Research-through-Design. Categories of Selected Toolkits/Tools (as per Databases 1,2,3 from D 2.2.1.): Understanding User Diversity; User Capability; Personas Methods; User Research; Empathy trial (tool); Envisioning tool; User Capability; Exclusion calculation; User Experience; Cognitive demands. Sub-Categories and Others Recommended Toolkits/Tools: NA.	
S	students	Students work together in groups to solve problems, complete tasks, or create projects. This method	Collaborative work enhances the design process for Equality, Diversity, and Inclusion (EDI) issues by bringing	Methodologies/Approaches: Human-Centred Design, Inclusive Design, Design Thinking; Peer reviews; Collective Moments of	Online platforms facilitate collaboration and communication among students and educators. Virtual classrooms, discussion forums, and

emphasizes teamwork, communication, and peer learning. It allows also to mix diverse group of students.

together diverse skills and perspectives:

- Diverse Perspectives: Incorporating varied viewpoints Co-design. helps identify and address a wider range of EDI issues.
- Enhanced Creativity and Innovation: Collaboration fosters creativity, and effective solutions.
- Improved Leveraging collective expertise improves the understanding and resolution of complex EDI challenges.
- Empathy and Understanding: Collaborative efforts increase empathy and awareness of different experiences.
- Cross-Disciplinary Insights: Including members from various fields provides a comprehensive approach to EDI issues (if students are from different

domains).

Reflections (CMR); Thinking Aloud methods.

Categories of Selected Toolkits/Tools (as per Databases 1,2,3 from D 2.2.1.):

Sub-Categories and Others Recommended Toolkits/Tools: Inclusive Design Toolkit (Cambridge University); Inclusive Design Toolkit (Microsoft); Inclusive Design Toolkit (ONTARIO); The Inclusive Design Guide (IDRC, OCAD leading to unique University); Microsoft: Inclusive Design toolkit - Sub Tool: Inclusive Design for Cognition: Worksheet; and Sub Tool: Problem-Solving: Inclusive Design for Cognition Screeners; UNaLAB Toolkit: Tools for Co-creation (UNALAB); **EDI Toolkit for Researchers** (teachers) by Newcastle University; EDI Faculty Toolkit (Humber College's); Tools for taking action (Stanford University); IDEO - Design Thinking for Educators; SNOW Inclusive Learning & Education (IDCR, OCAD) [For more information see database 2 and 3 of D 2.2.1.].

> Moreover: Focus collaborative tool such as: Operationalizing Inclusive Design (Google, rif. Design Sprint); Inclusive Design toolkit (POLIMI): Social Impact Design SID Toolkit (K. Strateji).

collaborative tools (e.g. Google Classroom, Miro, Teams, Moodle) enable students to engage in group projects, peer reviews, and interactive learning activities regardless of physical location or mobility.

4.3 Interpretative Map

All the above analysis allowed us to produce an interpretative map in two forms:

- 1. Interactive Data-Based Map: Prepared on Airtable platform and based on the database from A 2.2., which includes a list of tools and their characteristics. The database was extended by adding additional columns with tags representing the selected teaching methods and teaching content from A 2.3. This allows users to search for suitable tools for specific teaching content or teaching methods by using filters (see Figure 1).
- 2. Matrix: A table where teaching contents are matched with teaching methods, and on this connection, a list of tools was added. This comprehensive elaboration provides a wide range

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of tools and methods that can be used in EDI education for specific teaching content. The Matrix is presented in Appendix 1.



Figure 1 - Interactive database prepared via Airtable (https://airtable.com/appbJKpTyy2HieIOC/shrG5FUccjWtxaeny)

5. Competency Framework for Students

The competency framework for students is an integral part of this research, complementing its focus on EDI-oriented educational objectives. It outlines the competencies that students are expected to develop. When utilizing the tools presented, it is essential to understand the specific competencies that need to be gained by students.

This set of competences applies universally to the educational process involved in EDI-oriented teaching, and as such should be considered and applied in both digital and non-digital learning environments.

The competency framework is categorized into three sections, aligning the types of EDI-oriented teaching content developed in A 2.3. This framework is also included in this report in Appendix 1, where tools are matched with specific content types. By employing this competency framework alongside the EDI-oriented teaching content, academic teachers can utilize the tools more effectively, with a clear focus on the desired student outcomes and the competencies they aim to achieve.

Competencies	Description	MoSCoW Prioritization ¹
KNOWLEDGE		
Unbiased knowledge on EDI in Design studies, including resources and authors	It refers to objective and impartial information on EDI within Design Studies. Unbiased knowledge is essential to properly deal with EDI-related issues as well as to set up methodologies and design interventions that fully meet EDI. This also involves providing access to balanced and well-researched resources (e.g., academic articles, books, reports) and recognizing authors who	M

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		contribute significantly to EDI discourse without bias. The goal is to ensure that the information presented aids in understanding and addressing EDI issues in design, fostering an inclusive environment and informing policy and practice in a fair and equitable manner.	
2.	Knowledge on how to critically engage with EDI themes and users	This competence involves understanding and analyzing EDI issues within a given context and interacting with diverse user groups for different projects. It requires recognizing biases, fostering inclusive dialogue, and applying EDI principles in decision-making processes.	М
3.	Knowledge of design-based / design-oriented methods to work with EDI themes and issues	This competence involves using design cultures and methodologies to address EDI. This includes user-cantered design, participatory design, and co-design to engage diverse stakeholders, identify EDI challenges, and develop EDI-oriented solutions. These methods prioritize empathy, collaboration, and iteration, ensuring that diverse perspectives shape the design process and outcomes, promoting fairness and inclusivity.	М
4.	Knowledge of specific methods to work with diverse and mixed groups of people	This competence includes understanding and applying techniques such as inclusive facilitation, cultural competence training, and conflict resolution strategies. These methods emphasize active listening, empathy, and respect for different perspectives. Tools like teambuilding exercises and structured dialogues help create a collaborative environment, ensuring all voices are heard and valued, leading to more effective and inclusive outcomes.	М
5.	Knowledge in the use of suitable digital tools to work with EDI	This competence involves understanding and utilizing technology to support EDI-oriented efforts. This includes platforms for virtual collaboration, project management, and communication. Tools for accessibility (e.g., screen readers, captioning services) are essential as much as the use of specific digital tools developed by researchers to effectively work with multidimension features of EDI, including users and stakeholders. These tools help facilitate inclusive practices, ensure accessibility, and enable effective monitoring and analysis of EDI initiatives.	М
6.	Knowledge of social sciences topics that support the understanding of EDI in design processes.	This competence refers to understanding sociology, psychology, anthropology, and cultural studies to provide insights into human behavior, social dynamics, and cultural contexts, helping designers create more equitable and inclusive solutions by considering diverse user needs and systemic biases.	S
7.	Knowledge of multimodal tools to communicate EDI	The knowledge involves using various methods like visual aids, digital media, storytelling, and interactive platforms to convey EDI concepts into holistic discussions with users and stakeholders. Tools may include infographics, videos, social media, virtual reality, and webinars. These diverse communication modes enhance understanding, engagement, and accessibility, effectively promoting EDI principles across different audiences.	S
AE	BILITY		
8.	Use of experience and knowledge to smartly address EDI-related issues	This ability is about applying expertise and practical insights to identify, understand, and solve problems related to EDI topics at different design scales (e.g., solution, digital, environmental, behavioral, etc.). It involves leveraging past experiences, best practices, and informed strategies to create effective, sustainable solutions that foster EDI in various contexts. It collaterally echoes the ability to engage with users and	М

	stakeholders to produce common strategies that maximize the impact of designs.	
9. Working with diverse and mixed groups of users and stakeholders	Ability to engage individuals from various backgrounds, including different races, genders, ages, and abilities. It requires inclusive practices, active listening, and collaborative approaches to ensure all perspectives are valued. This fosters innovative solutions and equitable outcomes by leveraging the strengths and insights of a varied group.	M
10. Developing empathy with EDI topics	The ability focuses on the competence of developing deep understanding and sensitivity towards EDI issues. It involves actively listening to diverse perspectives, acknowledging privilege and biases, and fostering a genuine desire to address systemic inequalities. This empathy drives meaningful engagement and informed decision-making to promote fairness and inclusivity in all aspects of design and interaction.	M
11. Expressing critical reflections on EDI	Ability to analyse and evaluate EDI issues thoughtfully and objectively, aiming to provoke meaningful dialogue and positive change. It indirectly refers to the knowledge on EDI as well as the use of unbiased information useful to generate a deep culture on EDI.	M
12. Identifying promising case studies and comparing different sources and materials useful extract relevant patterns and best practices to be translated into EDI-oriented design practices	Analyzing various sources and real projects to extract patterns and best practices for EDI-oriented design. By comparing different materials, designers can translate insights into effective strategies that promote EDI in their work.	M
13. Recognizing and understanding EDI in different design contexts	Acknowledging how EDI impact influences design processes and outcomes across various industries and applications. It requires sensitivity to cultural, social, and economic factors to ensure inclusive and equitable design solutions. It also involves the capability of designers to identify arrays of EDI-related aspects in different contexts that do not directly show adherence to EDI.	M
14. Communicating EDI with diverse and mixed groups of people	Ability to use inclusive language, cultural sensitivity, and engaging multimedia tools. It aims to foster understanding, promote dialogue, and empower diverse perspectives in discussions and initiatives related to equity, diversity, and inclusion.	M
15. Identifying the best diverse and mixed groups of people and stakeholders representing the variety of all possible users of a project	Selecting representatives from varied demographics, including different ages, genders, ethnicities, abilities, and backgrounds. This ensures comprehensive input and consideration of diverse perspectives, enhancing the project's inclusivity and relevance to all potential users.	M
16. Developing hard and soft skills on EDI	Ability to acquire both technical competencies such as data analysis and policy implementation, as well as interpersonal abilities like empathy, communication, and cultural competence. These skills are essential for effectively addressing EDI issues in diverse settings and promoting meaningful change.	M
17. Embedding EDI into digital design practices	Integrating EDI principles that prioritize accessibility, inclusivity, and representation. This includes using inclusive design frameworks, conducting user research that embraces diversity, and implementing ethical guidelines to ensure equitable outcomes in digital products and services. By fostering a culture of diversity and sensitivity to user needs, designers can create more impactful and inclusive experiences for all users.	S
18. Developing shareable knowledge on EDI	Ability to create accessible resources and insights that can be widely distributed and understood. This involves compiling research, case studies, and best practices in	S

	formats such as reports, articles, and workshops. By making this knowledge available, it promotes awareness, education, and actionable strategies for advancing EDI across various sectors and communities.	
19. Use of abstraction and generalization skills to develo meaningful insights on EDI	The use of abstraction and generalization skills in exploring EDI involves distilling complex social dynamics into manageable concepts and patterns. It is about recognizing recurring themes across diverse contexts, identifying underlying principles that shape EDI outcomes, and framing solutions applicable across various scenarios. This process integrates different perspectives (i.e., sociology, psychology, economics, etc.) to build a comprehensive understanding of systemic biases, power structures, and inclusive practices. Through abstraction, it is possible to reveal universal truths about discrimination, representation, and cultural competence. Generalization then allows to apply these insights broadly, informing policies, interventions, and organizational strategies that promote fairness, respect, and equality for all individuals. Thus, abstraction and generalization in EDI enable nuanced analysis, innovative problem-solving, and sustainable societal change.	S
20. Development of critical, latera and convergent thinking on E	explores novel perspectives. Convergent thinking synthesizes solutions for equitable, diverse, and inclusive outcomes in society.	S
21. Development of management skills to be translated into EDI oriented / EDI-based projects	Developing management skills for EDI projects involves fostering inclusive leadership, aligning goals with diversity metrics, and navigating complex social dynamics. It requires strategic planning, resource allocation, stakeholder engagement, and continuous evaluation to ensure equitable outcomes. Integrating EDI into project management enhances organizational resilience, innovation, and societal impact, driving sustainable change towards equality and inclusion.	S
22. Creating design scenarios that promote EDI	Creating design scenarios for EDI involves envisioning inclusive strategies, environments, products, systems, or services that accommodate diverse needs and perspectives. It requires empathy, research into user demographics, and iterative prototyping to ensure accessibility and cultural sensitivity. Designers integrate feedback from diverse stakeholders to refine solutions that foster EDI, promoting positive social impact through thoughtful and intentional design choices.	S
23. Recognizing the different design dimensions of EDI (social, economic, technical, environmental, etc.)		S
24. Managing multifaced issues about EDI (social, economic, technical, environmental, etc.) that go beyond pre-assigned tasks	Managing multifaceted issues about EDI involves navigating complex interactions between actors, social	S

25. Developing design-led self- awareness on EDI and the methods to work with EDI, including users	Developing design-led self-awareness on EDI involves introspection on biases, understanding diverse user perspectives, and integrating inclusive design methods. It includes empathy-building, user research, co-design workshops, and iterative prototyping to create solutions that cater to varied needs. Collaboration with diverse stakeholders ensures equitable outcomes, fostering a culture of sensitivity and responsiveness to societal diversity. Effective methods encompass user testing, feedback loops, and cultural competence training, aiming for designs that promote equality, dignity, and empowerment across all demographics.	S
26. Proposing novel strategies to address EDI (opportunity to setting up forums for discussions among students, staff, and stakeholders)	Proposing novel strategies for EDI involves creating forums where students, staff, and stakeholders can engage in open discussions. These platforms foster understanding, empathy, and collaboration across diverse perspectives. Strategies include structured dialogues, workshops on unconscious bias, and inclusive policy development, aiming to cultivate a supportive environment. Continuous feedback loops and evaluation ensure effectiveness, promoting a culture of inclusivity and equity within educational and organizational settings.	S
27. Creating collaborative work environments where everyone can feel represented	Creating collaborative work environments involves fostering inclusivity, respecting diverse perspectives, and ensuring equitable participation for all team members.	S
28. Developing multicultural and soft skills on EDI	Developing multicultural and soft skills in the context of EDI involves cultivating empathy, communication, and cultural competence. It includes learning to navigate diverse perspectives, fostering inclusive environments, and promoting respectful interactions across varied cultural backgrounds and identities. These skills enable effective collaboration, leadership, and advocacy for equitable practices and policies in diverse settings.	С
29. Choosing between 'here and now' interventions and long-term holistic strategy	Choosing between 'here and now' interventions and long-term holistic strategies in EDI involves balancing immediate impact with sustainable systemic change. Short-term interventions address urgent needs and immediate disparities, offering quick solutions. In contrast, long-term strategies aim for comprehensive transformation, tackling root causes and embedding equity into organizational culture and policies. The choice depends on context, resources, and goals, aiming for both immediate relief and enduring equity advancements in the pursuit of EDI goals.	С
30. Recognizing and propose new perspectives on EDI	It involves challenging traditional norms, amplifying marginalized voices, and embracing intersectional approaches. It requires openness to evolving societal dynamics, advocating for systemic change, and fostering environments where diversity thrives authentically.	С
ATTITUDE		
31. Overcoming own beliefs, cultural assumptions, and unconscious biases	The attitude of overcoming own beliefs, cultural assumptions, and unconscious biases involves humility, self-reflection, and openness to learning. It requires questioning ingrained perspectives, actively seeking diverse viewpoints, and committing to continuous personal growth to foster genuine inclusivity and understanding.	М
32. Putting aside individualism and egocentrism	The attitude of putting aside individualism and egocentrism involves prioritizing collective well-being, empathy, and collaboration. It requires valuing diverse perspectives, listening actively, and fostering a sense of	М

		community to promote inclusivity and equity in all interactions and decision-making processes.	
33.	Be curious and open for new design perspectives	Being curious and open for new design perspectives involves embracing creativity, exploring unconventional ideas, and seeking inspiration from diverse sources. It requires a willingness to challenge assumptions, innovate with empathy, and collaborate across disciplines to create inclusive and impactful designs that address diverse needs and experiences.	М
34.	Understanding the role of diverse and mixed groups of users and stakeholders	Understanding the role of diverse and mixed groups of users and stakeholders involves recognizing their varied perspectives, needs, and contributions. It requires empathy, active listening, and inclusive practices to ensure that designs and decisions reflect the diverse voices and experiences within the community or organization. This understanding fosters collaboration, innovation, and equitable outcomes in designing solutions that cater to a broad range of users and stakeholders.	M
35.	Open-mindedness on EDI to go beyond stereotypes and cliches	The attitude of open-mindedness on EDI involves transcending stereotypes and clichés through genuine curiosity and respect for diverse perspectives. It requires challenging assumptions, embracing complexity, and advocating for inclusive practices that recognize and celebrate the richness of individual experiences and identities.	M
36.	Putting aside pre-structured concepts on EDI so that any new project can start without biased assumptions	Putting aside pre-structured concepts on EDI involves approaching new projects with a fresh perspective, free from biased assumptions. It requires openness to diverse viewpoints, willingness to question established norms, and commitment to creating inclusive environments where all voices are heard and valued. This mindset fosters innovation and ensures that EDI initiatives are responsive and inclusive of the needs and realities of diverse communities.	S
37.	Exploring the different features of EDI, and to accept them as elements for new design opportunities	Exploring the different features of EDI involves understanding their multifaceted aspects and embracing them as catalysts for new design opportunities. It requires creativity, empathy, and a willingness to integrate diverse perspectives into innovative solutions that promote equality and inclusivity across various contexts and initiatives.	С
38.	Use of the design practice as a learning process to advance the knowledge on EDI (learning by doing)	The attitude of using design practice as a learning process to advance knowledge on EDI involves actively engaging in hands-on experiences and iterative learning. It requires experimentation, reflection, and adaptation of inclusive design methods to develop deeper insights and effective strategies for fostering equity and diversity. This approach emphasizes continuous improvement and collaboration to address societal challenges and promote meaningful change through practical application and learning by doing.	С
39.	Highlighting positive effects of a project that stimulate constructive patterns	Highlighting positive effects of a project that stimulate constructive patterns involves emphasizing outcomes that inspire beneficial behaviors, attitudes, and systemic changes. It focuses on showcasing how initiatives foster inclusivity, equity, and mutual understanding, encouraging replicable practices and reinforcing positive impacts within communities or organizations.	С
40.	Attitude toward leadership and creating strategies for EDI-related interventions	The attitude toward leadership in creating strategies for EDI interventions involves proactive guidance, vision, and commitment to fostering inclusive environments. It requires aligning organizational goals with EDI principles, empowering diverse voices, and	W

implementing strategies that promote equity an representation. Effective leadership cultivates a of accountability, continuous learning, and colla to drive meaningful change and achieve sustain outcomes.	culture boration
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¹ MoSCoW: M) Must have, S) Should have, C) Could have, W) Would have

6. Conclusions

The main result of the report is the identification of best practices in terms of delivering EDI-oriented contents supported by suitable methodologies and tools, for promising replications into digital environments, including:

- An overview of tools that support EDI-oriented design education with recommendations for its implementation (4.1).
- Selection of tools that build digital environment for EDI-oriented design education (4.2).
- Matching the tools with teaching content and teaching methods (4.3; Appendix 1).

A complementary element of the report is the competency framework that is linked to the teaching content and builds a comprehensive picture of the educational goals that need to be delivered.

The conducted analysis presents various digital resources, including knowledge bases, manuals, handbooks, and educational pathways, which cater to different levels of complexity. Tools such as interactive games, templates, and worksheets support both individual and group learning. Additionally, specific toolkits enhance the learning experience by fostering empathy, critical thinking, and effective team communication. These tools contribute to a comprehensive support ecosystem for EDI education, highlighting the importance of cultural context and the educator's role in adapting and facilitating these resources.

Appendix 1 – Best Practices with Tools

Link to EDIDesK Repository Folder for WP2 (public access)