The Open University

Accessibility and MOOCs: The current state and next steps

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Community workshop
Inclusive Design Research Centre
Nov 30 2016

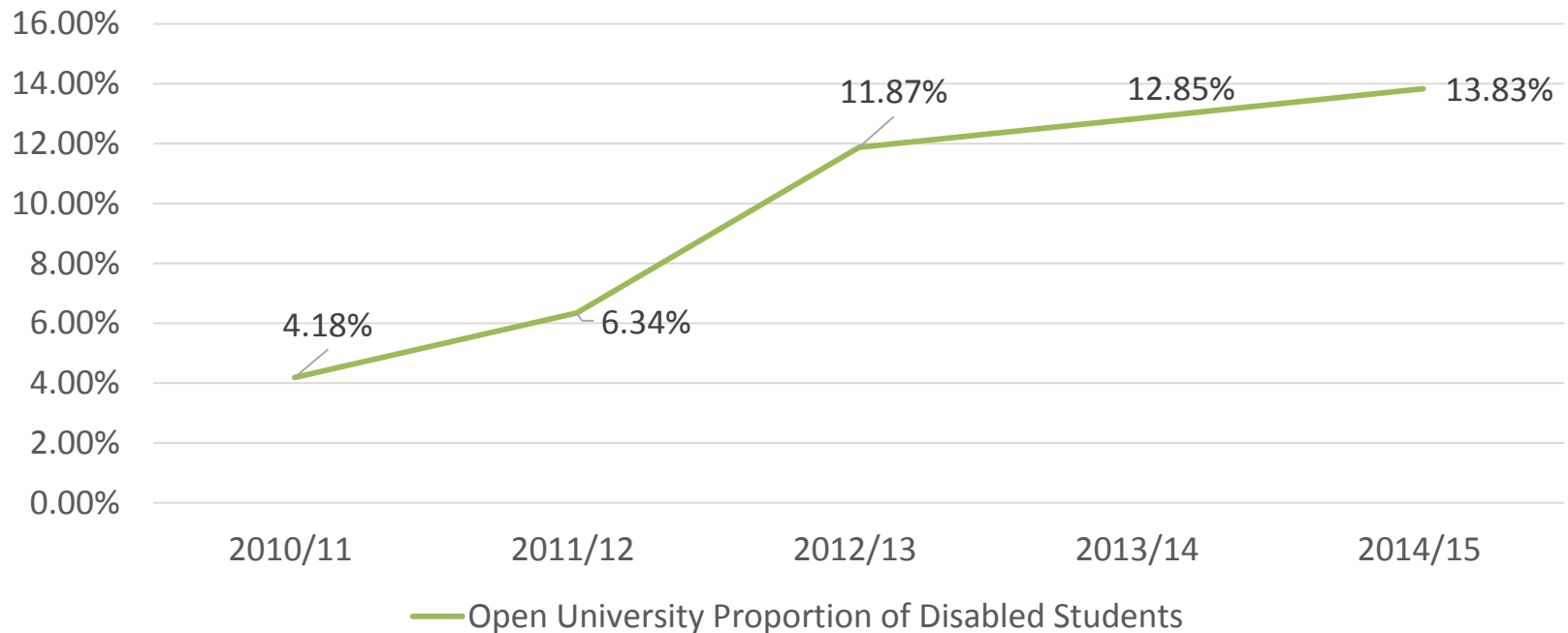The Leverhulme Trust

G⬡GN
Global OER Graduate Network

INTRODUCING MYSELF

- Software Engineer at UAM

- IT consulting and software **development** using Agile

- Mst. in Languages and Computer Systems. Specialized in teaching, learning, collaboration and adaptation at UNED.

- Part time PhD research student at UNED (Covadonga Rodrigo & Timothy Read)

- Full time PhD research student at the Open University and in the Institute of Educational Technology (IET), under the program **Leverhulme Open World Learning (OWL)**. (Patrick McAndrew, Shailey Minocha & Tim Coughlan)

- Member of the **Global OER Graduate Network**, a worldwide network of PhD researchers and their supervisors in the field of Open Educational Resources (OERs), MOOCs and open learning.

- Research projects: **OpenScout**, research chair **"Technology and Accessibility"** UNED – Vodafone Foundation, **MUSACCES** and **OLA!**.

DISTANCE EDUCATION AND OPEN EDUCATION

- **8% UK universities**
- **14%** of students of the **Open University**
- **40%** of Spanish HE students with disabilities were enrolled at **UNED**
- **23%** of the users of open resources published by the **OU (via iTunesU, YouTube and OpenLearn)**

Open University Proportion of Disabled Students

Tendencies. Open knowledge and networks: Massive Open Online Courses (1)

| 1991 | **...** | 2001 | 2006 | 2012 | 2013 | 2017 |
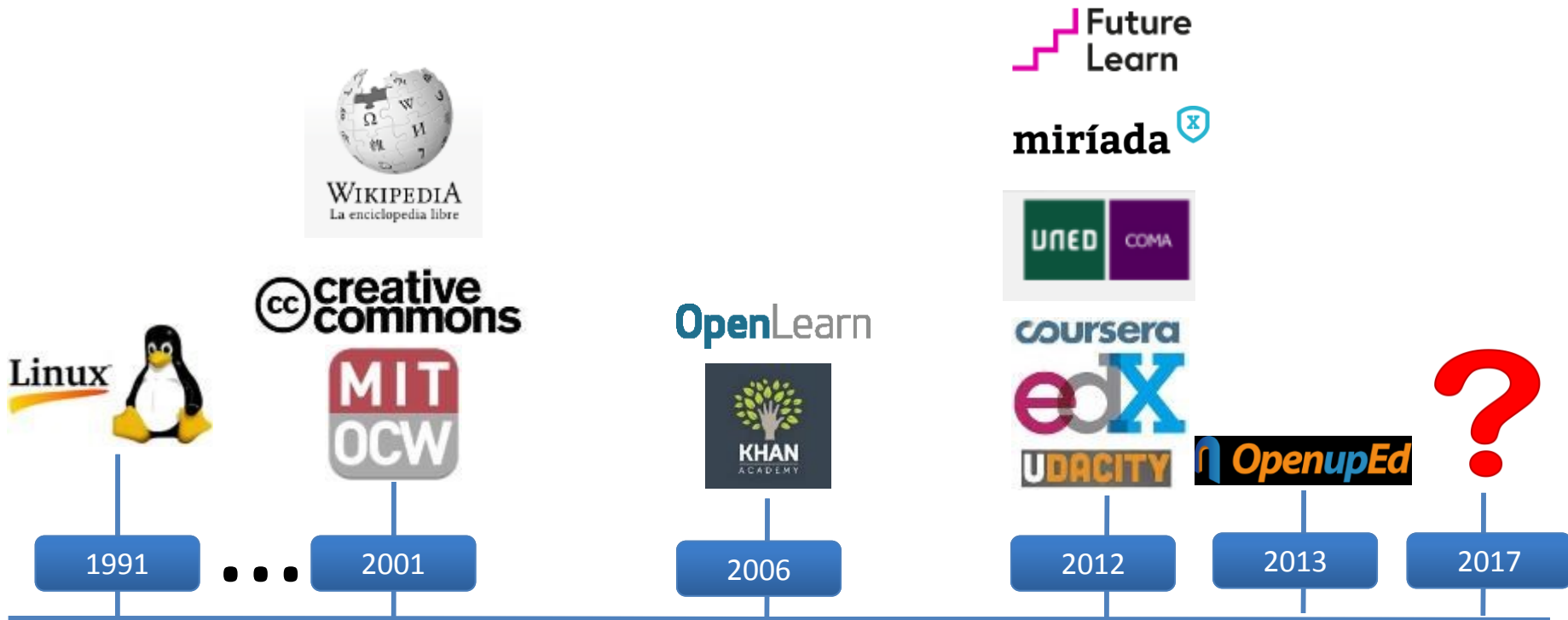
Tendencies. Open knowledge and networks: Massive Open Online Courses (2)
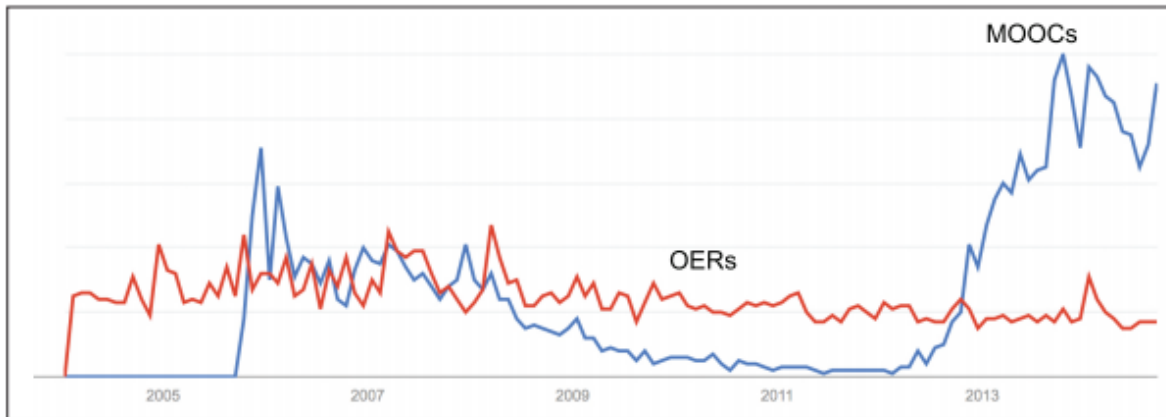
Figure 4: Google Trends plot of relative interest in MOOCs and OERs.
Source: Google Trends http://www.google.com/trends/explore#q=moocs%2C%20OERs&cmpt=q. (7th September 2014)

Weller, M 2014 The Battle For Open: How openness won and why it doesn't feel like victory
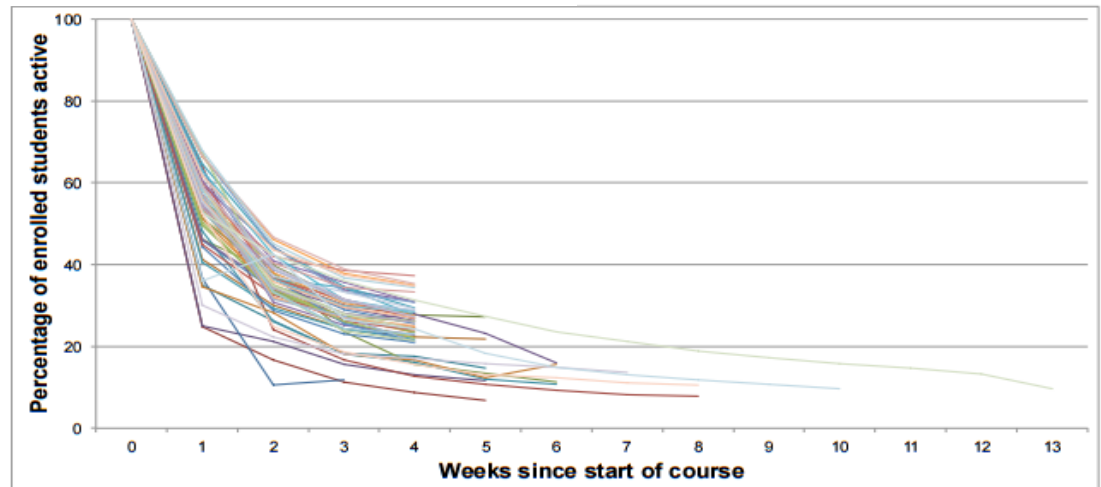

Figure 6: Attrition rates of active participants in MOOCs across disciplines.
Source: Jordan and Weller 2013a. Published under a CC-BY license.

THE PORTO DECLARATION ON EUROPEAN MOOCS AND THE EQUALITY ACT (2010)

*"Importantly, we stress that **MOOCs must not be seen as the outcome or exemplar of online education. Rather they need to be understood in a wider context as there is a long history of research on open and online education and a variety of approaches and tools to provide quality learning opportunities to all**."*

Are MOOCs accessible to all?

"You're disabled if you have a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on your ability to do normal daily activities".

A disability should **not be limited to physical problems** (medical model), it also depends on **the social and cultural environment of the individual**, the age or economic difficulties (social model)

HESA FORM 2016/2017

ALL SECTIONS MUST BE COMPLETED

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2. Sexual Orientation *Please tick ONE box:*

- ☐ 1 Bisexual
- ☐ 2 Gay man
- ☐ 3 Gay woman/lesbian
- ☐ 4 Heterosexual / straight
- ☐ 5 Other _____
- ☐ 98 Prefer not to say

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3. Religion or Belief *Please tick ONE box:*

- ☐ 2 Buddhist
- ☐ 3 Christian
- ☐ 10 Hindu
- ☐ 11 Jewish
- ☐ 12 Muslim
- ☐ 13 Sikh
- ☐ 14 Spiritual
- ☐ 01 No religion
- ☐ 80 Other
- ☐ 98 Prefer not to say

---

4. Please state your nationality: _____

If dual nationality, please write both, UK or EU country first if applicable

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5. Ethnic Origin *Please tick ONE box*

Ethnic origin questions are not about nationality, place of birth or citizenship. They are concerned with broad ethnic groups. Please tick the box you feel most closely describes your ethnic origin *(one box only).*

Asian or Asian British	**Mixed**	**White**
☐ 31 Indian	☐ 41 White and Black Caribbean	☐ 10 White
☐ 32 Pakistani	☐ 42 White and Black African	☐ 15 Gypsy or Traveller
☐ 33 Bangladeshi	☐ 43 White and Asian	**Black or Black British**
☐ 34 Chinese	☐ 49 Other mixed background	☐ 21 Caribbean
☐ 39 Other Asian background		☐ 22 African
	☐ 50 Arab	☐ 29 Other Black background

- ☐ 98 Prefer not to say
- ☐ 80 Other ethnic origin _____

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6. Do you have any special needs or medical conditions? *Please tick AT LEAST one box*

- ☐ 00 No known disability
- ☐ 51 A specific learning difficulty such as dyslexia, dyspraxia or AD(H)D
- ☐ 53 A social/communication impairment such as Asperger's syndrome/other autistic spectrum disorder
- ☐ 54 A long standing illness or health condition such as cancer, HIV, diabetes, chronic heart disease, asthma or epilepsy
- ☐ 55 A mental health condition, such as depression, schizophrenia or anxiety disorder
- ☐ 56 A physical impairment or mobility issues, such as difficulty using arms or using a wheelchair or crutches
- ☐ 57 Deaf or a serious hearing impairment
- ☐ 58 Blind or a serious visual impairment uncorrected by glasses
- ☐ 96 A disability, impairment or medical condition that is not listed above:

  Please specify: _____

INTRODUCTION AND RELATED WORK

- **Open Educational Resources** (OER) and **Massive Open Online Courses** (MOOCs) offer new opportunities for learners:
  - Openness
  - Low cost
  - Ubiquity (Time, place and pace)
  - Acquiring knowledge
  - Social learning: Connectivism
  - Achieving new competences
  - Develop professionally

- This new **educational paradigm** has not developed with an inherent capacity to **attend to the needs of all students**
- This poses a serious problem to its foundation principles of being **open to all**

Lack of support for disabled students in open learning :

- Poor compliance of **platforms and contents** with web accessibility standards
- Lack of **information about accessibility preferences** of students
- **Barriers of e-commerce** or biometric techniques
- Accessibility barriers of **third party software and social networks**

2015 SETTLEMENT WITH EDX

FOR IMMEDIATE RELEASE   Thursday, April 2, 2015

United States Reaches Settlement with Provider of Massive Open Online Courses to Make its Content Accessible to the Disabled

"MOOCs have the potential to increase access to high-quality education for people facing income, distance, and other barriers, but only if they are truly open to everyone. This landmark agreement is far-reaching in ensuring that individuals with disabilities will have an equal opportunity to independently and conveniently access quality higher education online" said Acting Assistant Attorney General Gupta. "edX is to be commended for working with the Justice Department to take such steps."

Berkeley may remove free online content rather than complying with disability law

Submitted by Scott Jaschik on September 20, 2016 - 3:31am

The University of California, Berkeley, has announced that it may eliminate free online content rather than comply with a U.S. Justice Department order that it make the content accessible to those with disabilities.

The content in question is all free and is for the general public to use. "The department's findings do not implicate the accessibility of educational opportunities provided to our enrolled students," said a statement [1] on the situation by Cathy Koshland, vice chancellor for undergraduate education.

While the university has not made a final decision, she said, it may not be able to afford complying with the Justice Department's recommendations on how to make the online material accessible.

"In many cases the requirements proposed by the department would require the university to implement extremely expensive measures to continue to make these resources available to the public for free," she wrote. "We believe that in a time of substantial budget deficits and shrinking state financial support, our first obligation is to use our limited resources to support our enrolled students. Therefore, we must strongly consider the unenviable option of whether to remove content from public access."

LITERATURE REVIEW

User-based empirical studies
Heuristic evaluations
Online surveys
MOOC framework: Integrating accessibility aspects within the technological infrastructure of MOOCs or adapting the legal framework
MOOCS as an approach to teach accessibility

- Qualitative approach tend to use very small samples and just one group of disabilities such as vision impairment
- Quantitative methods tend to focus on just one platform
- The heuristic evaluations do not usually include user-based approaches being just technical reports

RESEARCH QUESTIONS AND METHODOLOGY

Online surveys and online learner activity

Interviews

MOOC Accessibility audit

RQ 1. How can MOOCs help learners with disabilities to improve their knowledge and skills?

RQ 2. How could the accessibility of MOOCs be improved?

RQ 3. How could MOOCs resources be adapted to meet the accessibility needs of the learners?
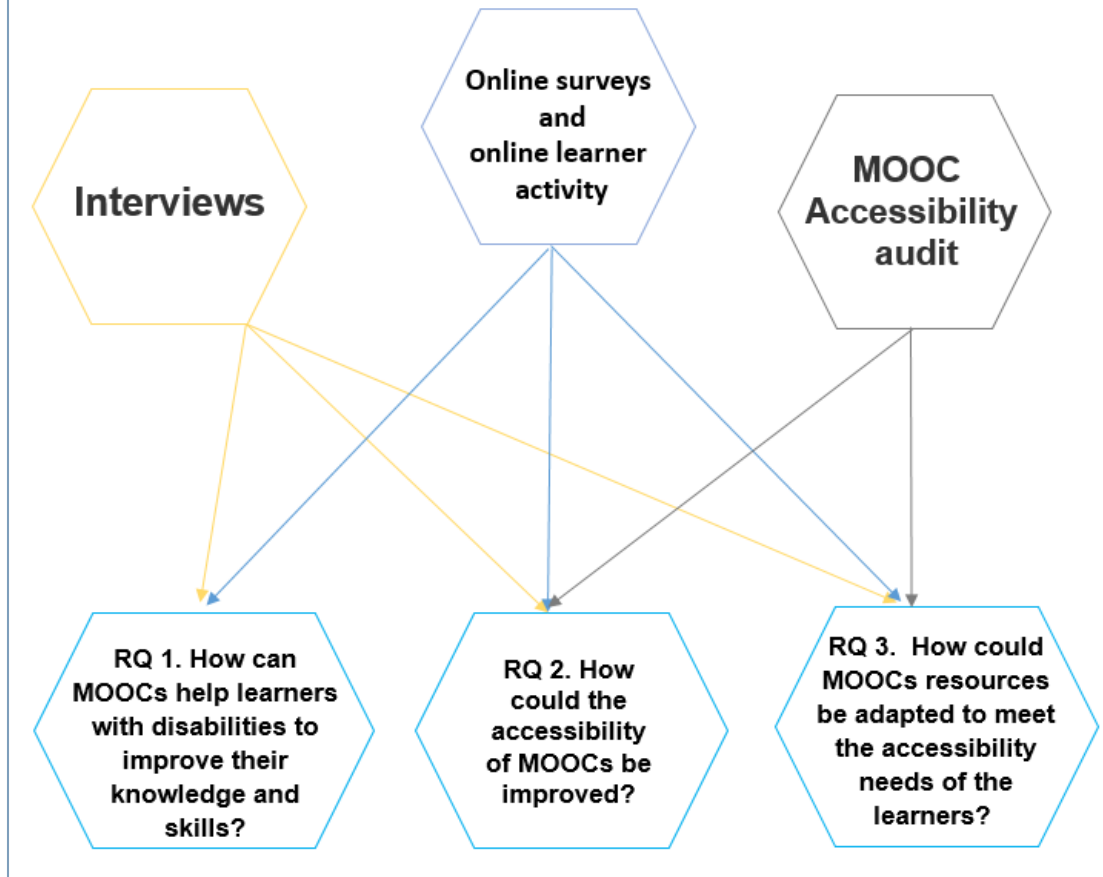
- RQ1 a. How do educators and MOOC providers see MOOCs as being useful for learners with disabilities?
- RQ1 b. What are the expectations of learners with disabilities when taking part in a MOOC?

- RQ2 a. What is the current state of accessibility of MOOCs?
- RQ2 b. Which aspects of accessibility could be improved?

- Interviews

  - MOOC platform providers, course providers and MOOC researchers.

    - 12 interviews: 5 accessibility content managers, 3 platform software developers and 4 experts in the MOOC community
    - UK, Spain, Portugal, Ecuador, USA and Guatemala.
    - FutureLearn, edX, Telescopio, UNED COMA, UAb iMOOC, the ECO eLearning project

  - Learners

Thematic map from the interviews

International Legislation and Standardisation
— Legislation and standardisation

Organisational Structure
— Educational resources
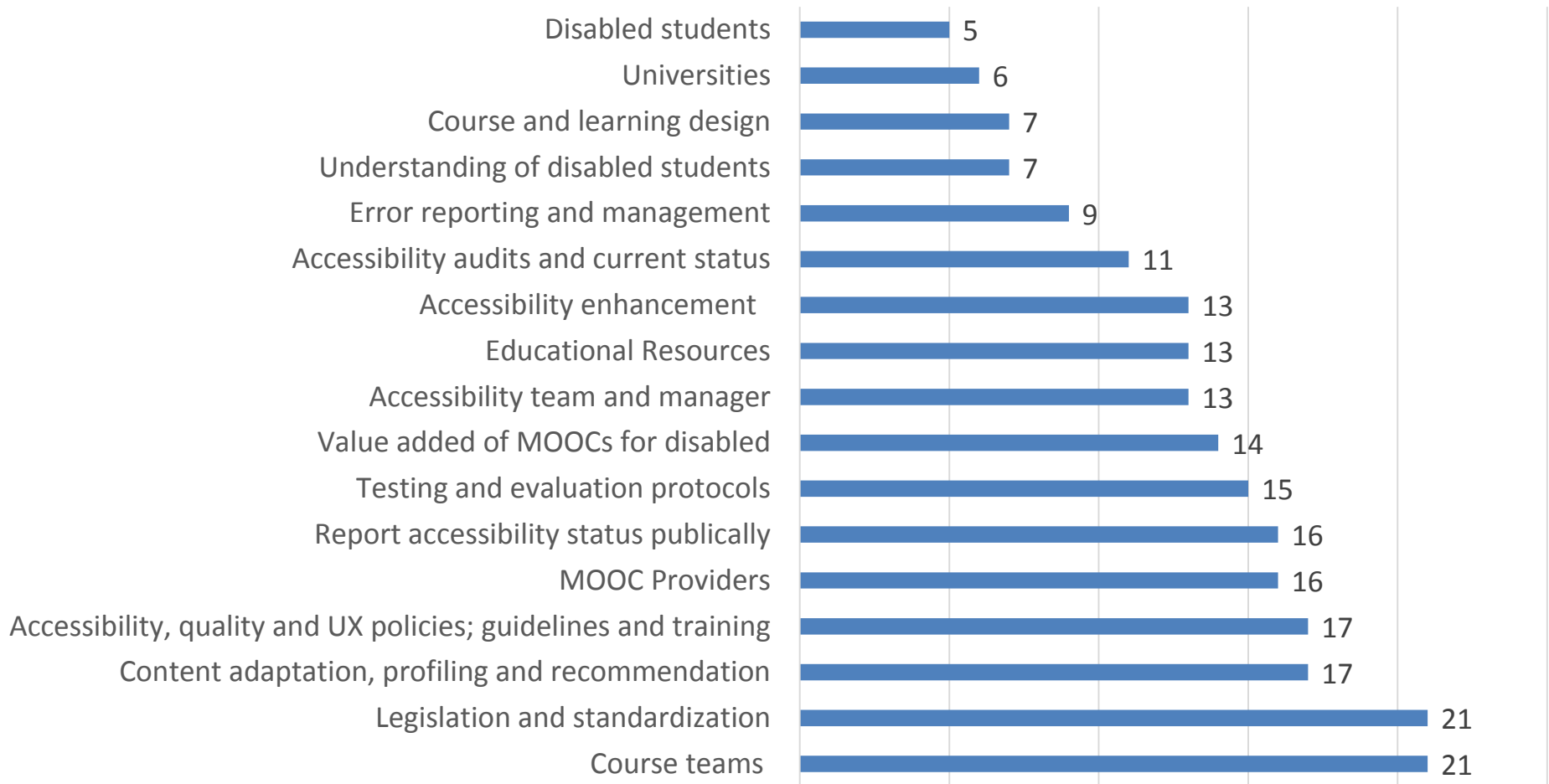— Accessibility, quality and UX policies; guidelines and training
— Course and learning design
— Testing and evaluation protocols
— Error reporting and management

Disabled Learners and MOOCs
— Value added of MOOCs for disabled
— Understanding of disabled learners

Stakeholders
— Universities
— Course teams
— Accessibility team and manager
— Disabled learners
— MOOC providers

MOOCs Accessibility: State, Improvement, Adaptation and Recognition
— Accessibility enhancement
— Accessibility audits and current state
— Content adaptation, profiling and recommendation
— Report accessibility state publically

Iniesto, F., McAndrew P., Minocha S. & Coughlan T. (2016).
Accessibility of MOOCs: understanding the provider perspective
Journal of Interactive Media in Education JIME

Frequency of the themes

Theme	Value
Disabled students	5
Universities	6
Course and learning design	7
Understanding of disabled students	7
Error reporting and management	9
Accessibility audits and current status	11
Accessibility enhancement	13
Educational Resources	13
Accessibility team and manager	13
Value added of MOOCs for disabled	14
Testing and evaluation protocols	15
Report accessibility status publically	16
MOOC Providers	16
Accessibility, quality and UX policies; guidelines and training	17
Content adaptation, profiling and recommendation	17
Legislation and standardization	21
Course teams	21

Fill the gap -> Educators and researchers.
OER experts, learning analytics and eLearning quality

ONLINE SURVEYS AND ONLINE LEARNER ACTIVITY (RQ1B, RQ2B, RQ3)

MOOCs available from past courses in FutureLearn :
- Medicine & dentistry
  - The Science of Nutrition
- Biological sciences
  - Introduction to Ecosystems
- Physical sciences
  - Basic Science: Understanding Experiments
  - Moons
  - Elements of Renewable Energy
- Mathematical sciences
  - Managing my Money
- Computer sciences
  - Introduction to Cyber Security
  - Learn to code for data analysis
- Architecture, building & planning
  - Smart Cities
- Business & administrative studies
  - The Business of film
- Historical & philosophical studies
  - The Lottery of Birth
- Creative arts & design
  - Understanding Musical Scores
  - Start Writing Fiction
- Education
  - Get Started with Online learning

- Analyse pre and post course survey data from 14 Open University MOOCs at FutureLearn (2013-2015)
  - Pre (41406 – 4481)
  - Post (8870 - 1055)
- Possibility to include MOOCs from other providers

Online Learner Activity: Steps-activity file and the comments file. (8 MOOCs 2015)

- Data related to user interaction. (steps, include all the interactions users perform inside a course)
  - Dictionary (Machine Learning)

INTERVIEWS (RQ1A, RQ2B, RQ3) (2)

- Medicine & dentistry
  - The Science of Nutrition
- Physical sciences
  - Elements of Renewable Energy
- Computer sciences
  - Learn to code for data analysis
- Architecture, building & planning
  - Smart Cities
- Business & administrative studies
  - The Business of film
- Historical & philosophical studies
  - The Lottery of Birth
- Creative arts & design
  - Understanding Musical Scores
- Education
  - Get Started with Online learning

8 MOOCs from 2015:

- Pre-course disabled responded favourably to being interviewed: 746
- Post-course disabled responded favourably to being interviewed: 112
  - **Pre and Post common learners: 56**
    - Blind or partially sighted
    - Deaf or hard of hearing:
    - Restricted mobility
    - Restricted manual skills (difficulty handling items)
    - Dyslexia or other specific learning difficulties
    - Mental health difficulties
    - Personal Care Support
    - Fatigue or pain
    - Unseen disabilities
- Learners who do not declare disabilities
- Enriched with other profiles and MOOC providers

ACCESSIBILITY AUDIT (RQ2A, RQ3)

- This is an iterative method of trial and error. The accessibility audit is developed by iterative steps that will improve the instrument.

    - **The first iteration** focused primary in the use of **automatic tools**

    - **The second iteration** of this instrument, the process and the **vector of characteristics** that came to be commonly evaluated in a MOOC platform and courses.

    - **The third iteration** will be an optimal version offering the vector of characteristics that any platform and course should review and therefore show the information to the end user in terms of accessibility.
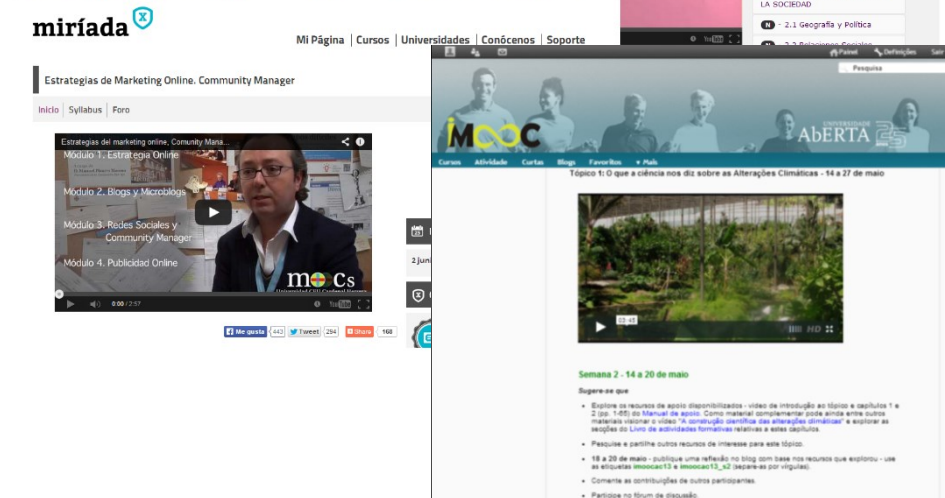
ACCESSIBILITY AUDIT: ITERATION 0

"Emprendimiento y Desarrollo de Aplicaciones de Realidad Aumentada" (COLMENIA: Weprendo + UnX).
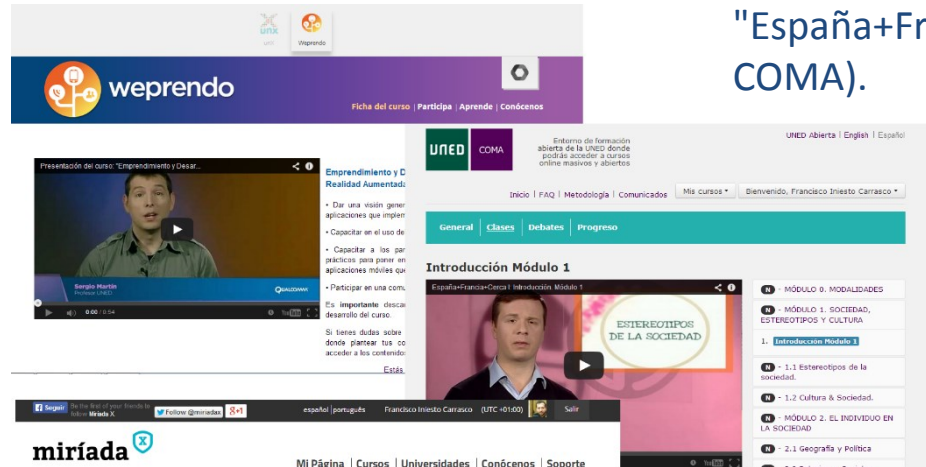
"España+Francia+Cerca I" (UNED COMA).

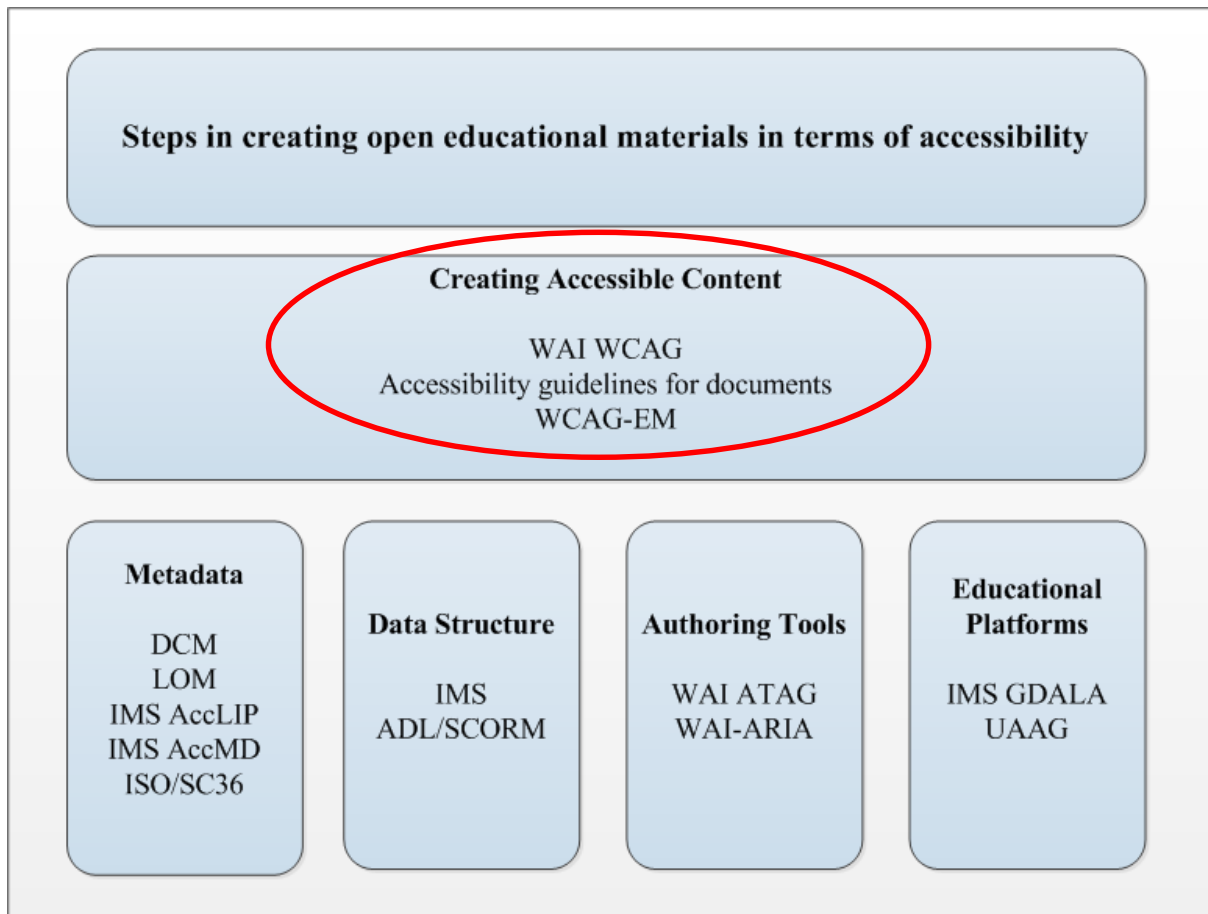"Estrategias de Marketing Online. Community Manager" (Miriada X.).

"As alterações climáticas - or contexto das experiências de vida" (UAb iMOOC)

Iniesto, F., Rodrigo, C. & Moreira Teixeira, A. (2014). *Accessibility analysis in MOOC platforms. A case study : UNED COMA and UAb iMOOC. ORO, http://oro.open.ac.uk/45192/*

Iniesto, F. & Rodrigo, C. (2014). *Accessibility assessment of MOOC platforms in Spanish: UNED COMA, COLMENIA and MiriadaX. ORO, http://oro.open.ac.uk/45193/*

ACCESSIBILITY AUDIT: ITERATION 0 (1)

Steps in creating open educational materials in terms of accessibility

Creating Accessible Content

WAI WCAG
Accessibility guidelines for documents
WCAG-EM

Metadata

DCM
LOM
IMS AccLIP
IMS AccMD
ISO/SC36

Data Structure

IMS
ADL/SCORM

Authoring Tools

WAI ATAG
WAI-ARIA

Educational Platforms

IMS GDALA
UAAG

eLearning platform standards:

Web Content Accessibility Guidelines (WCAG) 2.0 (2008)

Website Accessibility Conformance Evaluation Methodology 1.0

• Documents: PDF, Word. Follow **Accessibility guidelines for documents**

• Videos (pills): **Include subtitles, Sign Language Interpreter, Include alternative text to the video content**. Textual description

Methodology that combines:

- Conformance reviews.

- Screening techniques.

▪ A selection of **a set of Web pages**:

- The platform's homepage.
- The registration\login page
- A representative page of the course.
- A course page including a test.
- A course page including a forum.
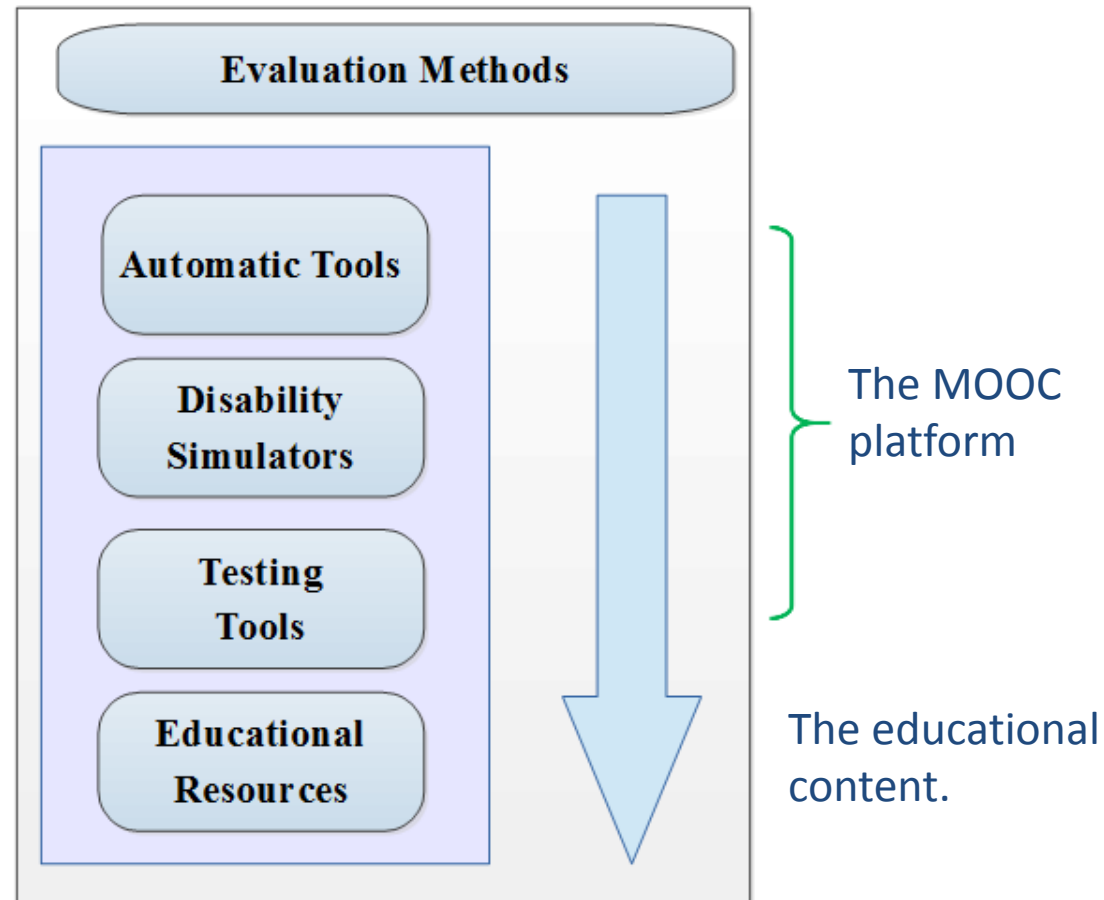- A course page including a p2p.

▪ **Educational resources** (Knowledge Pills)
  ▪ Text based: PDF, Word,…
  ▪ Multimedia, Video lessons.

- Evaluation through **automatic accessibility tools** :
  - WCAG Accessibility Validation: **eXaminator**
  - Disability Simulators: **aDesigner**
- User Experience (UX)
  - Testing Tools: **Sortsite**
- **Educational content** evaluation

Evaluation Methods

Automatic Tools

Disability Simulators

Testing Tools

Educational Resources

The MOOC platform

The educational content.

AUTOMATIC ACCESSIBILITY TOOLS. EXAMINATOR

Generic information

Disaggregated test table

Results by criteria

Informe

4.1

URI: https://www.miriadax.net/web/creacion-y-retoque-de-imagenesn-con-software-libre/inicio 🔍
Título: Miriada X: Creación y retoque de imágenes con software libre
Elementos: 445
Tamaño: 9.2 KB *(9448 bytes)*
Fecha/Hora: 06/10/2014 - 8:35 GMT

Los resultados de la validación (X)HTML no están incluidos. 🔍

Resultados generales de 19 pruebas:

| Excelente (4) | Regular (3) | Mal (6) | Muy mal (6) | Tablero |

Lista completa de pruebas

#	Situación	N	P	N*P
1	Hay 22 imágenes sin alternativas textuales	1	3	3
2	Hay 4 enlaces cuyo contenido es sólo una imagen sin alternativa textual	1	3	3
3	Hay 2 elementos iframe sin title	1	2.8	2.8
4	Hay 5 enlaces con el mismo texto pero diferentes destinos	1	2.2	2.2
5	En 7 casos se asocian eventos a elementos no interactivos	1	1.76	1.8
6	Hay 1 formulario sin un botón de envío	1	0.72	0.7
7	Hay 3 tablas sin celdas de encabezados	2	3.6	7.2
8	Hay 1 tabla que contiene una o más tablas anidadas	2	1.98	4
9	El primer enlace de la página no lleva al contenido principal de la página	3	2.88	8.6
10	No existen enlaces para saltar bloques de contenido	3	2.88	8.6
11	Hay 4 valores repetidos en los atributos id	3	2	6
12	Falta el código de idioma en el atributo lang	3	2	6
13	En 2 casos se usan medidas absolutas para indicar el ancho de un elemento	4	2.2	8.8
14	En 1 caso se usa medidas absolutas en atributos HTML	4	1.98	7.9
15	Hay 1 caso de reglas CSS que no especifican los colores de primer plano y fondo a la vez	5	1.08	5.4
16	Se usan 13 elementos de encabezado	10	3.42	34.2
17	No se usan atributos para controlar la presentación visual	10	3.2	32
18	No se usan elementos para controlar la presentación visual	10	2.2	22
19	La página tiene un elemento title	10	1.62	16.2
			2.343	9.495

Score ponderado = round(9.495 / 2.343) = 4.1

Resultados por personas

- Limitación total para ver: Score **3.6** (16 pruebas)
- Limitación grave para ver: Score **4.5** (18 pruebas)
- Limitación de los miembros superiores: Score **3.5** (15 pruebas)
- Limitación para comprender: Score **4.2** (12 pruebas)
- Limitaciones derivadas de la edad: Score **4.8** (15 pruebas)

DISABILITY SIMULATOR. ADESIGNER

Simulator

Detailed report

TESTING TOOLS. SORTSITE

- **General Errors**: Broken links, Server configuration
- **Web browsers compatibility**
- **Privacy**: standards regulating privacy
- **Search Guidelines**
- **Standards**: W3C HTML/XHTML, W3C CSS Validation, W3C Style Guide
- **Usability**: W3C Best Practices

Results report

Chart Sitemap
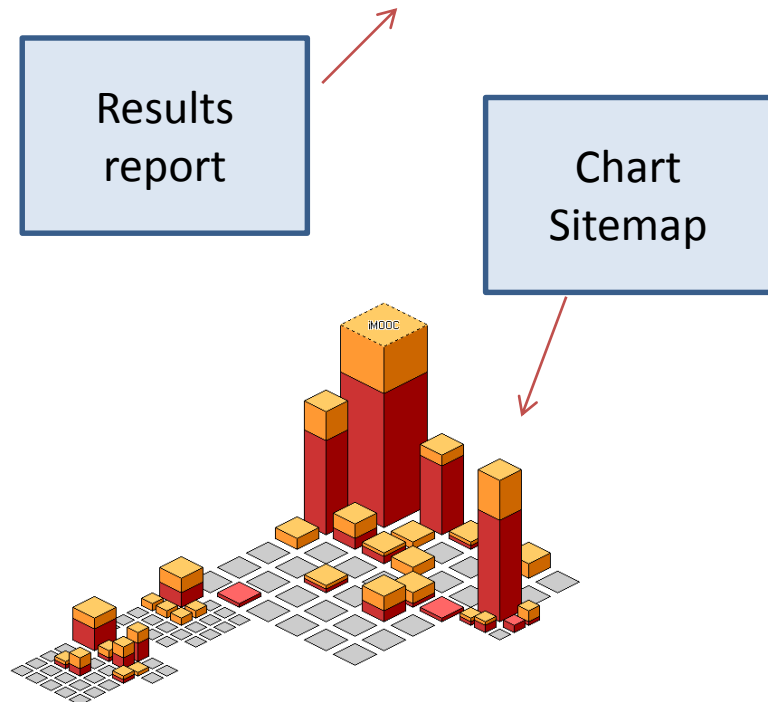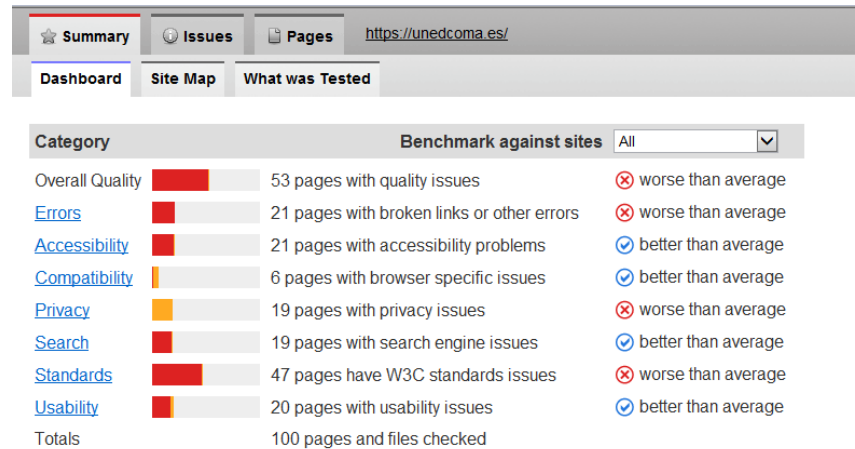
ACCESSIBILITY AUDIT: ITERATION 0 (4)

UNED COMA	Excellent, good and very good	Regular	Bad	Very Bad	Score	Compliance
Homepage	7	1	4	1	6.6	54%
Form	7	1	2	3	7.7	54%
Course	7	1	4	3	6.8	50%
Forum	6	2	4	1	6.7	46%
Average Value					**6.1**	**51%**
COLMENIA						
Homepage	5	2	7	6	4.5	25%
Form	5	3	8	4	4.7	25%
Course	7	2	7	1	5.4	41%
Forum	6	1	5	5	6.2	32%
Valor Medio					**5.2**	**31%**
Miriada X						
Homepage	4	1	4	7	4.2	25%
Form	6	3	8	4	4.5	29%
Course	4	3	5	6	4.1	22%
Forum	6	3	8	4	4.5	29%
Average Value					**4.3**	**26%**
UAb iMOOC						
Homepage	7	6	4	5	4.8	32%
Form	7	2	1	3	5.8	54%
Course	9	2	1	4	6.1	56%
Forum	9	4	2	4	5.9	47%
Average Value					**5.6**	**47%**

ACCESSIBILITY AUDIT: ITERATION 0 (5)

UNED COMA	totally blind	difficulty in seeing	members	Understanding	age
Homepage	7.2	6.4	6.9	5.7	6.5
Form	6	6.4	5	5.4	6.2
Course	6.5	5.7	5.8	5.3	6
Forum	6	6.5	6.6	5.8	6.1
Average Value	**6.4**	**6.2**	**6.1**	**5.5**	**6.2**
COLMENIA					
Homepage	4.5	4.7	4.2	5.2	5.2
Form	4.2	5	4.2	5.2	5.5
Course	4.5	5.7	4.9	6	6.2
Forum	5.3	6.7	5.7	7.1	7.1
Average Value	**4.6**	**4.4**	**4.7**	**5.9**	**6**
Miriada X					
Homepage	4	4.3	3.6	4.3	4.6
Form	4.3	4.7	4.2	4.6	4.8
Course	3.6	4.5	3.5	4.3	4.8
Forum	4.3	4.7	4.2	4.6	4.8
Average Value	**3.3**	**4.5**	**3.9**	**4.4**	**4.7**
UAb iMOOC					
Homepage	5	4.9	4.9	4.3	5
Form	5.9	6.3	5.5	5.3	6.1
Course	5.8	6.7	6.0	5.9	6.4
Forum	5.8	6.2	6.0	5.5	6.0
Average Value	**5.6**	**6**	**5.6**	**5.25**	**5.8**

ACCESSIBILITY AUDIT: ITERATION 0 (6)

	UNED COMA	COLMENIA	Miriada X
Sans-serif style	No, Times New Roman	Yes, Calibri	Yes, Calibri
Visual hierarchy	Correct	Correct	Correct
Contrast	Correct, black and white	Correct	Correct, colours abuse
Underline	Correct	Correct	Not applicable
Adjust the sound volume	Correct	Not applicable	Not applicable
Text, symbols or pictures for auditory materials	Not provided	Not applicable	Not applicable
Images must be high resolution	Low resolution	Low resolution	Medium resolution
Graphs and tables with titles and abstracts	Not provided	Not provided	Not provided

	UNED COMA	COLMENIA	Miriada X	UAb iMOOC
Include subtitled	Yes	No	Yes	No
Sign Language Interpreter	No	No	No	No
Textual transcription	No, Videos in French only.	No	No	No

✓All platforms obtain average results 5 – 6 /10 -> place for improvement. None of the platforms achieve reasonable values (higher than 60%).

✓For the educational content -> no standards (either platforms or accessible educational content). -> accessibility guidelines.

✓Lack of full accessibility of audiovisual resources exist for all the platforms.

MOOC accessibility audit

- Evaluation through accessibility tools
- WCAG accessibility validation
- Disability simulators
- Text based documents and video lessons accessibility validation
- Evaluation of usability and User eXperience (UX)
- Usability testing tools
- Manual techniques of user experience testing with learners
- Educational content (pedagogical design) evaluation
- Review of intended learning outcomes
- Activity run-throughs or developmental testing with learners

Iniesto, F., McAndrew P., Minocha S. & Coughlan T. (2016). *The current state of accessibility of MOOCs: What are the next steps?* ORO, http://oro.open.ac.uk/46070/

MOOC ACCESSIBILITY AUDIT

- Evaluation through **accessibility tools**:
  - WCAG accessibility validation
  - Disability simulators
  - Text based documents and video lessons accessibility validation.
- Evaluation of **Usability and User Experience (UX)**:
  - Usability Testing tools
  - Manual techniques of user experience testing with learners
- **Educational content (pedagogical design) evaluation**.
  - Review of intended learning outcomes.
  - Activity run-throughs or developmental testing with learners

ITERATIONS (1)

Iteration 0
1 x platform

COLMENIA: Weprendo + UnX

UNED COMA

Miriada X

UAb iMOOC

Iteration 1
3 x platform, different course providers

FutureLearn

Coursera

edX

Udacity

ITERATIONS (2)

Iteration 0

- Evaluation through **automatic accessibility tools** :
  - WCAG Accessibility Validation: **eXaminator**
  - Disability Simulators: **aDesigner**
- User Experience (UX)
  - Testing Tools: **Sortsite**
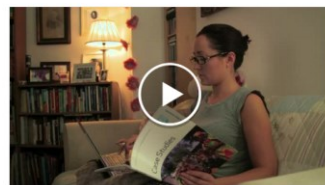- **Educational content** evaluation: **Manually**
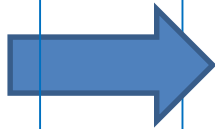
Iteration 1

- Evaluation through **accessibility tools**:
  - WCAG accessibility validation
    - **eXaminator**
    - **Functional Accessibility Evaluator (FAE)**
    - **Tingtun**
    - Mobile: **TAW**
    - **Manual validation**
  - Disability simulators:
    - **aDesigner**
  - Text based documents and video lessons accessibility validation.
    - Video-lessons: **Manually**
    - PDF: **PAC2, PAVE (Accessibility Validation Engine)**
- Evaluation of Usability and User Experience (UX):
  - Usability Testing tools
    - **Sortsite**
    - **Achecker**
    - **Pigdom**
  - Manual techniques of user experience testing with learners. **Personas**
- Educational content (pedagogical design) evaluation.

HOW SHOULD THE MODEL FOR AN ACCESSIBLE MOOC PLATFORM BE?

The minimum required level of accessibility :

- **Guarantee access to the conten**t by means of the platforms.

- Produce **the content accessible** in itself.

- Evaluate the access conditions.

- The technological platform.

- The content of the MOOC must be the same for all of the students.

- The students must be able to access the content using assistive technologies.

- It is necessary to offer alternative textual descriptions for multimedia content.
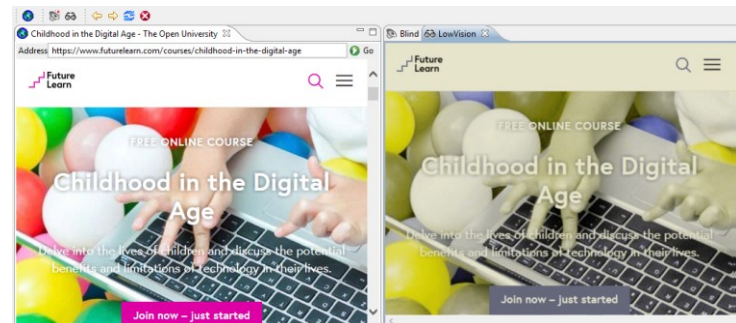
- Assistance must be provided.

THE NEED FOR MOOC SERVICES

Access to platform and register

↓

MOOC platform/repository

Meta-information

Educational content

Iniesto, F. & Rodrigo, C. (2016). Strategies for improving the level of accessibility in the design of MOOC-based learning services. ORO, http://oro.open.ac.uk/47501/
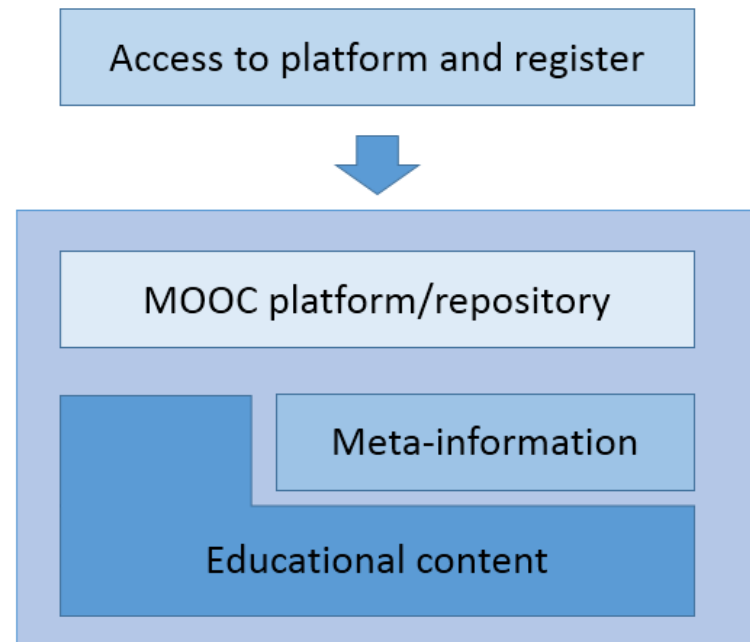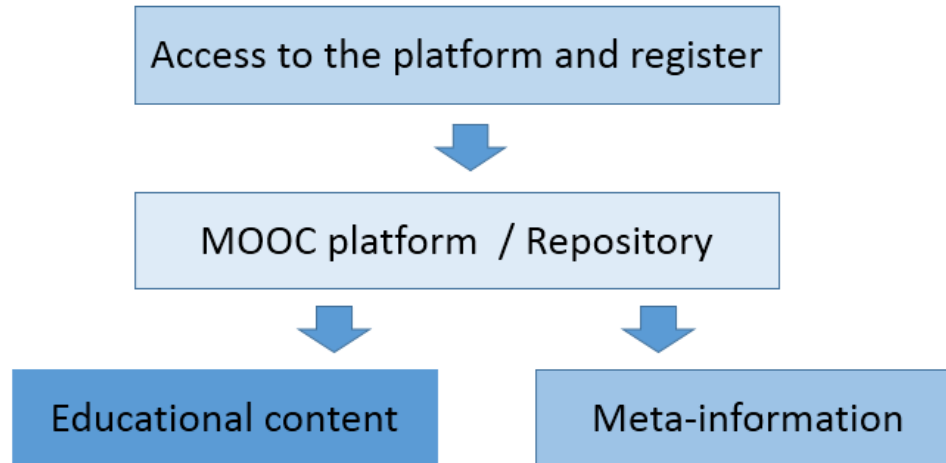
Components	
Access to the platform and register	Accessible access to the MOOC platform. A register module of accessible users
MOOC Platform	Modules to begin the session, P2P tasks (peer to peer or pair revision), forums and test evaluation. Repositories and accessible content management
Meta-information	The definition of a specific user profile which includes data on the support tools used, visualisation preferences or the management of educational resources.
Educational content	Accessible educational content available within the platform as educational resources in document or video-class format. Accessible access to external links and social networks.

ANALYSIS OF STANDARDS: ACCESSIBLE METADATA FOR USER PROFILE DEFINITION

Enrichment of user profile definition: assistive technologies, device user preferences

THE NEED FOR MOOC SERVICES

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┌─────────────────────────────────────┐
│   Access to the platform and register │
└─────────────────────────────────────┘
                    ↓
┌─────────────────────────────────────┐
│      MOOC platform  / Repository     │
└─────────────────────────────────────┘
          ↓                    ↓
┌──────────────────┐   ┌──────────────────┐
│ Educational content │   │  Meta-information │
└──────────────────┘   └──────────────────┘
```
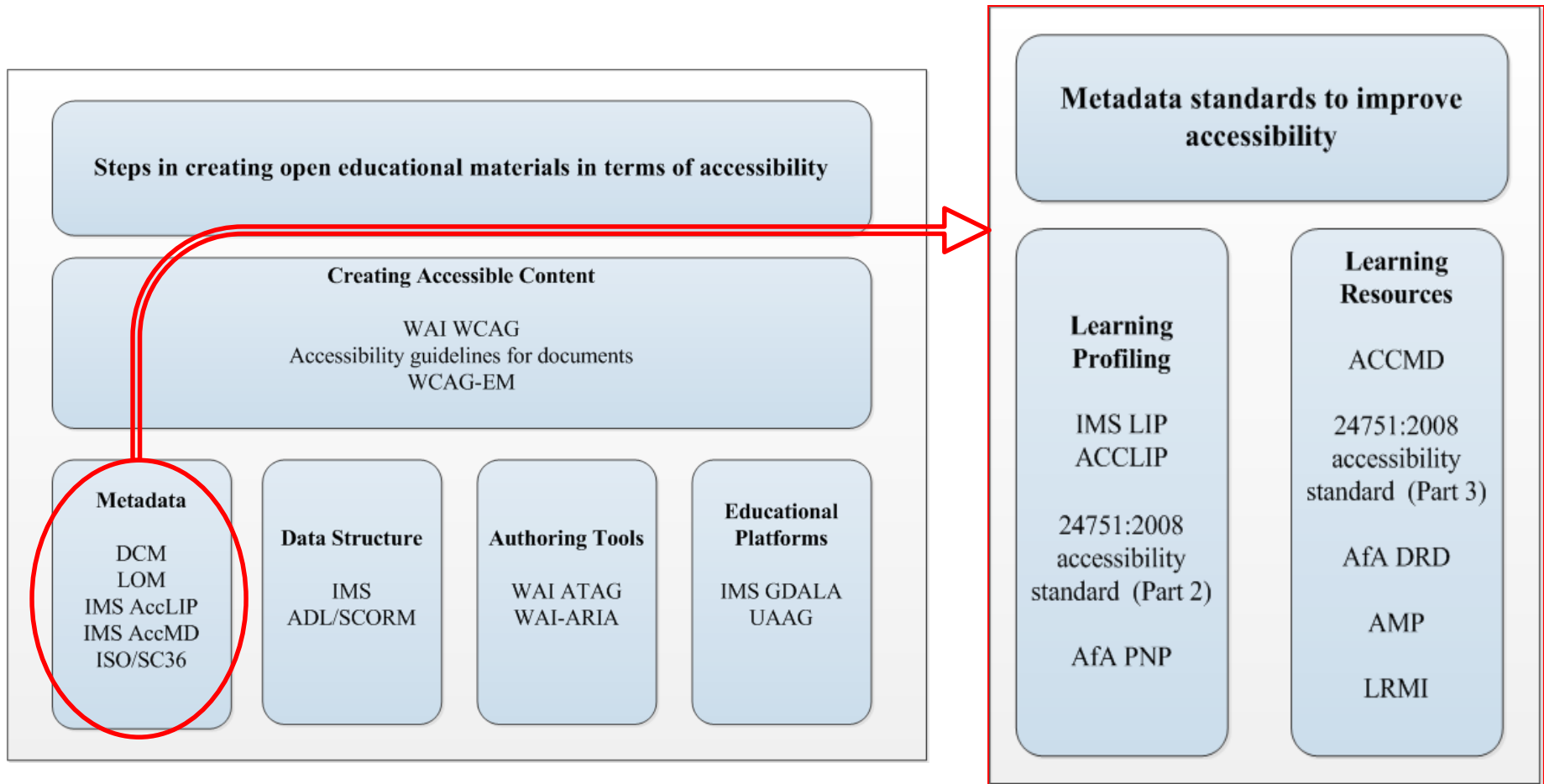
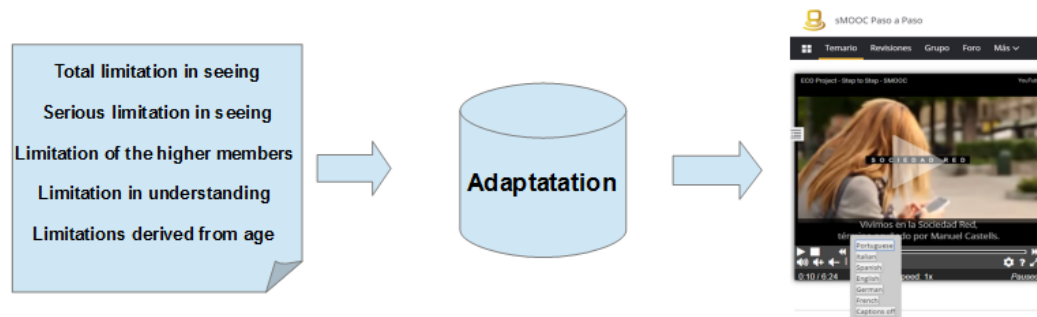| Component	
Access to the platform and register	Directives related to Web content (WCAG) Authoring tools (ATAG) User agents (UAAG).
MOOC platform	Accessible Portable Item Protocol (APIP)
Meta-information	AccessForAll (AfA): Personal needs and preferences (PNP) Digital resource description (DRD)
Educational content	Accessibility to video classes Accessibility to text documents

NEXT STEPS AND CONCLUSIONS

The next steps are:

- Interview with learners

- The first iteration of the MOOC accessibility audit

- Analyse data to the OMU (Survey data and activity data).

This research will benefit the MOOC providers who would be able to use my project's outputs:

- The accessibility audit

- Empirical research

- Guidelines

Learners with disabilities to improve their lifelong learning and re-skilling

Accessibility and MOOCs: The current state and next steps

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Community workshop
Inclusive Design Research Centre
Nov 30 2016

The Open University

The Leverhulme Trust

G☮GN
Global OER Graduate Network