IC-Health
Improving digital health literacy in Europe

D2.2 – MOOC on co-creation

August 2017

Revised in March 2018

Call
H2020-SC1-2016-CNECT

Type of action
Coordination and Support Action

Topic
SC1-HCO-12-2016: Digital health literacy

Duration
24 months

Start date
1 November 2016

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

Grant Agreement No:	727474
Project Acronym:	IC-Health
Project Title:	Improving digital health literacy in Europe
Funding scheme:	Horizon 2020: Health, demographic change and well-being
Contractual delivery date:	31/08/2017
Actual delivery date:	31/08/2017
Contributing WP:	WP2
Type:	Other
Dissemination level:	Public
Document description:	The deliverable provides information on the MOOC on co-creation that has been developed.

Editors

Organisation	
CE	Michelle Perello Beatrice Avagnina

Contributors

All other partners involved:
Lilisbeth Perestelo-Perez, Ana Toledo-Chavarri, Ana Wagner (GOBCAN), Stephan Van den Broucke, Jessica Vandenbosch (UCL), Pietro de Giudice, Marco Poletto, Giulia Bravo (UNIUD), Raquel Martín González (ULL), Daniel Guldenring (ULSTER), Peter Frank, Thomas Karopka, Allette Snijder (SCANBALT), Anna Pulcina (MEYER), Moa Glantz, Roberto Zuffada, Tommy Feldt (FUNKA), Alessia Montanari, Mattia Viano (CCM), Usman Khan, Michele Calabro', Yowali Kabamba (EHMA)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

List of Abbreviations

D	Deliverable
MOOC	Massive Online Open Course
CoP	Community of Practice
WP	Work Package
DL	Digital Literacy
HL	Health Literacy
DHL	Digital Health Literacy

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

Table of Contents

1 Introduction 5
2 Definition of IC-Health MOOC 6
4 MOOC key technical features 9
5 Content and structure of the MOOC on co-creation.....11

References 13

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

1 Introduction

The present deliverable provides relevant references and information on the MOOC on co-creation that has been developed by Consulta Europa with the support of the other project partners.

The MOOC on co-creation is an online learning course providing useful information on co-creation and co-design in the health context. The course is the result of:

- the investigation of the co-creation tools and techniques to be exploited in the project co-creation process;
- the organisation of one co-creation seminar attended by the IC-Health partners that will establish the Communities of Practice in the 8 project countries.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

2 Definition of IC-Health MOOC

The scope of the overview provided in this section is to define the concept of MOOC (Massive Open Online Course) for the project IC-Health - Improving digital health literacy in Europe. The project aims to design 35 MOOCs in eight different languages to support the development of digital health literacy skills for various population cohorts including children, adolescents, pregnant and lactating woman, elderly and people affected or susceptible to be affected by type 1 and type 2 diabetes. The IC-Health MOOCs are created during the project scope and no external experts will be included during the co-creation process.

Using MOOCs allows to approach a large number of learners and gain knowledge about various topics. MOOCs require individual learners to self-regulate the learning process and thus there is need to focus on how to support and influence the learners' behaviour (Littlejohn et al., 2016). To be able to have a full learning experience, the learning environment and the MOOC structure must foster active engagement in learning activities and include possibilities for different competency development. Moreover, it requires the leaners to be active in editing and producing information in variety of formats, but also obtaining information in various ways and situations (Downes, 2009). Although this is the case on regular MOOCs, since we are also focusing on creating MOOCs for children and adolescents, the previous definition is modified based on the project cohorts and additional changes are added bearing in mind the learning skills and digital competences of the project target groups. MOOCs enable children and adolescents, but also elderly and other users whose digital skills might be low to access otherwise unavailable knowledge and concepts (Huerta, 2014).

In order to better distinguish the MOOCs, based on the aims and strategic goals of the project, terms cMOOC and xMOOC are used. The structure of the connectivist MOOC model (cMOOC) includes a social, distributed, networked approach and significant learner autonomy that is focused on lifelong learners interested in both personal and professional development (Kop, 2011). On the contrary, the design of the Stanford Artificial Intelligence model (xMOOC) uses conventional instruction-based context of formal learning and it is categorized as a cognitive-behaviourist pedagogical approach (Rodriguez, 2012). Based on the premise of the **IC-Health** project a xMOOC definition and characteristics will be followed. Using xMOOCs helps learners acquire basic skills and cover new concepts, and that supports the aims of the IC-Health project. The following section includes a description of the common design features of xMOOCs.

IC-Health project focuses on knowledge development and because of that the **execution of the following components is carefully observed**:

- **Different learning material formats** – MOOCs developed by the project will include not only different text file formats, but also videos and other media materials,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

interactive learning materials. Games and interactive pictures could also be included upon Communities of Practice's feedback and request.

- **Assessment procedures –** An important part in knowledge development is the assessment, and the MOOCs created within IC-Health project will include both computerised tests, but also assessment on MOOC feasibility. The objective questions included at the end of each skill the MOOCs will tackle will be adapted according to the cohorts, in particular in the case of children and adolescents (for example learning games).
- **Leaners support –** As the aim of the project MOOCs is to reach large number of participants of different ages and different levels of digital skills, it is important to create a leaner support system. IC-Health MOOCs will include supporting learning material and activities included in the different topics/units composing the online courses.

xMOOCs use a specially designed platform software that allows a fast number of participants and provides facilities to store and stream different digital materials on demand, and automatic assessment procedures and student performance tracking. Furthermore, xMOOCs include video format learning materials, which are delivered on the online platform varying from 1-15 minutes in length. The MOOC often includes more video segments supporting learners in different ages. Videos may include lecture captures, face-to-face learning experience recordings, full studio productions, desk-top recording or digital videos. In the case of IC-Health, the MOOCs will include videos or video segments of a total length varying from 1-10 minutes.

The format of xMOOCs includes computer-marked assignments where the learning assignments and tasks are monitored by the MOOC online platform and learners can receive immediate computerised feedback, which has been pre-created by the MOOC developers. Alternatively, the tests may be used to determine the certificate. Most xMOOC test form assignments include multiple-choice or computer-marked questions but may also include text or formula boxes in case of computer coding or mathematical formulae. xMOOCs that are directed to young learners or learners with special needs may also include test where text is replaced with pictures and sounds, including games. As for IC-Health, the MOOCs will provide users right-wrong answer feedback to the objective questions embedded at the end of each skill.

Some xMOOCs include peer assessment where small groups are formed and include open-ended or more evaluative learning assignments questions (Bates, 2014). Because of the large number of leaners, the variations in expertise and the different levels of involvement in IC-Health MOOCs, this will not be applicable.
Additionally, xMOOCs include supporting learning materials – such as presentations, supplementary audio files, URLs and/or other third-party resources and online articles. Each

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

topic/unit of IC-Health MOOCs will include both learning materials and learning activities. Additional sections for extra learning materials might be envisaged by national coordinators in some of the MOOCs. Although xMOOCs may include shared comments and discussion space the MOOCs have little to no discussion moderation, meaning that the learning process is not monitored by teachers (Bates, 2014). As IC-Health MOOCs are intended for learners of different age groups and nationalities, comments and moderation of individual comments by the instructor(s) is not feasible. Based on the project basis and scope the MOOCs created will not be using peer assessment nor two-way interaction between participants and MOOC creators.

Most xMOOCs include some pre-established award in case of successful completion of the course, which is based on the computerised assessments. This can be monitored by linking each assignment to the intended aim of the MOOC. In the project this is supported by the MOOC platform Moodle, which includes progression bar plug-in allowing to link together learning activities, tasks and assignments with the planned aims and outcomes of the MOOC (Bates, 2014). In addition, a certificate of learning will be issued by the online platform once the learner has completed a MOOC and answered all online questions associated with the evaluation and impact assessment. It is hoped that the learning certificate will encourage learners to complete the online questions that the learner is requested to answer at the end of each MOOC.

Finally, the xMOOCs include learning analytics which is most often supported by the platforms that have the capacity to collect and analyse data produced by the participants and their performance, enabling then to give feedback to MOOC developers (Khalil, Taraghi & Ebner, 2016). This will be applicable also for IC-Health MOOCs.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

4 MOOC key technical features

The MOOC on co-creation has been developed using Course Builder by Google Open Education:
https://edu.google.com/openonline/course-builder/index.html

Course Builder is an Open Source (Apache 2.0), online education platform, which allows creating online courses. It has a rich feature set without requiring programming to create or run a course. The contents of the courses can consist of texts, documents, videos, slides and images.

The URL of the MOOC on co-creation is the following:
https://ic-health-mooc-on-co-creation.appspot.com

The MOOC consists mostly of texts and videos. An official Youtube channel of the IC-Health project has been opened and the created videos uploaded on that channel in order to embed them to the MOOC lessons developed on Course Builder. The URL of the IC-Health Youtube channel is the following:
https://www.youtube.com/channel/UCmQDvFEDSeVlS-kiDZVeVHA

Course Builder was used for the development of the MOOC on co-creation since in the project proposal the partnership suggested to use that tool which is relatively quick to get up and running and it is completely free to use. However, in September 2017 the consortium, with the advice of the technical partner Tallinn University, decided that the initially planned Google Course Builder system would be replaced with the Moodle learning environment. This choice was made for several purposes:

- Course Builder keeps and stores the users' data in Google cloud and significant number of users' interactions will be not for free for the project. The more interactions users perform in MOOCs, more the project has to pay for using Google services, but such costs are not eligible in the project and such solution is not sustainable;
- Moodle is open-source solution that can be modified according to the project needs: add plugins for supporting teaching and evaluation activities, also Moodle enhances the possibilities for evaluating the MOOCs through Learning Analytics, which would be beneficial for project results.

Moodle enables to design MOOCs focusing on different pedagogies: social and connective MOOCs (MOOCs), acquiring new knowledge and performing tests (MOOCs) and combining different possibilities (hybrid MOOCs). Moodle offers following main functionalities for the learners and teachers:

- Uploading learning materials: slideshows, articles, reports in different formats (pdfs, doc), videos, audio files, tests and quizzes with different type of questions.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

- Discussions in forum for sharing experiences, asking questions etc.

Additionally, TLU has planned to add some plugins to the Moodle: skills mapping plugin and data collection plugin. First enables to map MOOC activities with the skills (or competencies) related with health literacy and second enables to collect some additional data about users' interactions in online settings:

- Grades - grades distribution to identify the differences among evaluations and students with problems;
- Content accesses - users access of different resources.
- Number of active users – active users in a certain time of day.
- Assignment submissions– users' submission of assignments on time or late
- Hits distribution - user access of the course and its resources in each course week.

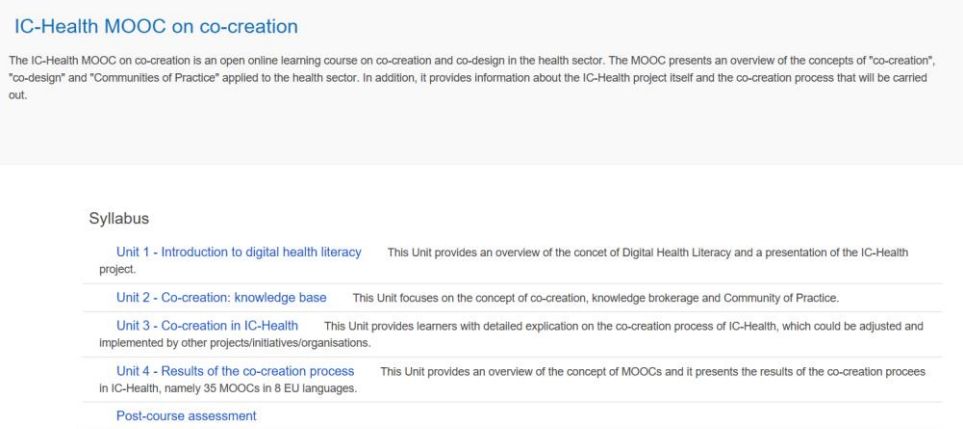
Tallinn University set up Moodle environment in September 2017 (https://ichealth-moocs.eu) and is responsible for hosting the platform. MOOCs are built to Moodle by Tallinn University team in collaboration with the MOOC teams for guaranteeing the similar structure and design of the MOOCs.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

5 Content and structure of the MOOC on co-creation

Based on the previous literature review, the MOOC on co-creation has been developed. It is composed of four units containing a total of 13 lessons and providing explanation and information on the concepts of digital health literacy, co-design and co-creation, knowledge brokerage, Communities of Practice and MOOCs. Moreover, the MOOC give details on the overall project approach for the co-creation and development of the 35 MOOCs.

The lessons of the course include texts, videos, images/infographics, links to documents and shared documents. At the end of the MOOC a post-course assessment section has been included. In this part users can text their acquired knowledge by answering to three questions.



Unit 1 - Introduction to DHL provides an overview of the concept of Digital Health Literacy and a presentation of the IC-Health project. This Unit includes the following lessons:

- Digital health literacy: definition and challenges
- What is DHL in everyday life?
- About IC-Health project

Unit 2 - Co-creation: knowledge base This Unit focuses on the concept of co-creation, knowledge brokerage and Community of Practice. This Unit includes the following lessons:

- Co-creation: definition and challenges
- Knowledge Brokerage
- What is a community of practice?

Unit 3 - Co-creation in IC-Health This Unit provides learners with detailed explication on the co-creation process of IC-Health, which could be adjusted and implemented by other projects/initiatives/organisations. This Unit includes the following lessons:

- IC-Health approach

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

- Target groups' invitation
- Target groups' recruitment and engagement
- Co-creation process in project countries

Unit 4 - Results of the co-creation process This Unit provides an overview of the concept of MOOCs and it presents the results of the co-creation processes in IC-Health, namely 35 MOOCs in 8 EU languages. This Unit includes the following lessons:

- Outputs of co-creation in IC-Health: 35 MOOCs
- Literature review on MOOCs and definition of IC-Health MOOCs
- IC-Health MOOc

A short post assessment has also been included at the end of the course. Right/wrong feedback to the replies of users is provided.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727474

References

Bates, T. (2014). *Comparing xMOOCs and cMOOCs: philosophy and practice. Online learning and distance education resources.* Retrieved [December 5, 2017] from https://www.tonybates.ca/2014/10/13/comparing-xmoocs-and-cmoocs-philosophy-and-practice/

Downes, S. (2009). *New tools for personal learning.* MEFANET 2009 Conference, Brno, Czech Republic, via MVU Videoconference. Retrieved from http://www.downes.ca/presentation/234

Huerta, M. (2014). Why Your Kids Should MOOC. Retrieved [December 7, 2017] from https://www.kars4kids.org/blog/why-kids-should-mooc/

Khalil, M., Taraghi, B., & Ebner. (2016). *Engaging Learning Analytics in MOOCs: The Good, The Bad, and the Ugly.* International Conference on Education and New Developments. Retrieved from: https://arxiv.org/pdf/1606.03776.pdf

Kop, R. (2011). The challenges to connectivist learning on open online networks: Learning experiences during a massive open online course. *The International Review of Research in Open and Distance Learning, Special Issue-Connectivism: Design and Delivery of Social Networked Learning, 12*(3).

Littlejohn, A., Hood, N., Milligan, C., & Mustain, P. (2016). Learning in MOOCs: Motivations and self-regulated learning in MOOCs. *Internet and Higher Education, 29*, 40-48.

Rodriguez, C. O. (2012). MOOCs and the AI-Stanford like courses: Two successful and distinct course formats for massive open online courses. *The European Journal of Open, Distance and E-Learning.* Retrieved from http://www.eurodl.org/?article=516