Reflecting about the key issues to design and implement an Open Education strategy

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This is the contribution to the "Key issues to design and implement a National declaration about Open Education" panel in the context of the International Day to Universal Access to Information (UDUAI2017) and eLearning Africa.

Open Education (Hedges & Giaconia, 1982; Iiyoshi & Vijay Kumar, 2008) supports the Open Knowledge philosophy (García-Peñalvo, García de Figuerola, & Merlo-Vega, 2010a, 2010b). Knowledge is open if anyone is free to access, use, modify, and share it — subject, at most, to measures that preserve provenance and openness (Open Definition Project, 2015).

Open Knowledge implies the social development of the nations (García-Peñalvo, 2016) by the means of equity due to the free access to the knowledge resources all over the world (for educational and research proposals). Thus, opening the knowledge is related to achieve more advances in the scientific development and a higher level of innovation that should be transferred to the Society.

An Open Education strategy should be based on different pillars:

1. **Contents**. Talking about open contents in education means Open Educational Resources (OER) (Atkins, Brown, & Hammond, 2007; Ramírez Montoya & García-Peñalvo, 2015; UNESCO, 2012). OER has several and important advantages such as sharing the knowledge, the experiences and the good practices and achieving an effectiveness improvement in the learning and teaching process, besides to increase the level of self-learning. However, there also exist risks to take into account such as bad practices in the OER creation and classification, bad user experiences searching and reusing OER and the existing myths about open movement (García-Peñalvo, 2017a).
2. **Practices**. Regarding open practices, MOOC (Massive Open Online Course) (Liyanagunawardena, Adams, & Williams, 2013; Martínez Abad, Rodríguez Conde, & García-Peñalvo, 2014) have been a disruptive element in open education. They have shaken the higher education panorama with an interesting approach that invites anyone to learn about whatever they want from the best teachers in the world by free. This means a wider scope for the educational institutions that also may achieve a growing visibility of their educational brands. On the other hand, the learners have a huge potential offer to be trained. However, MOOC are also accused about the loss of interaction among the participants and poor pedagogical practices (Zapata-Ros, 2013). In order to solve this, new pedagogical models are defined for MOOC development (Fidalgo-Blanco, García-Peñalvo, & Sein-Echaluce Lacleta, 2013; Fidalgo-Blanco, Sein-Echaluce Lacleta, Borrás Gené, & García-Peñalvo, 2014; Fidalgo-Blanco, Sein-Echaluce Lacleta, & García-Peñalvo, 2015; Fidalgo-Blanco, Sein-Echaluce, & García-Peñalvo, 2016). Other important open practice is Open Innovation. This area is still emerging, and the open science, co-creation of knowledge and open innovation triangle is presented as an opportunity to generate an original contribution from research to open

educational theory and practices (Ramírez-Montoya & García-Peñalvo, 2018). Co-creation processes (García-Peñalvo, Conde, Johnson, & Alier, 2013; Sloep & Berlanga, 2011) and other areas of open and collaborative science are found in what is named «crowd science», «citizen science», or «network-connected science». The most important barrier for open innovation is the suspicion of the involved stakeholders to share the open knowledge for innovation in fact.

3. **Access**. Open Access means inclusion, in other words, the knowledge is accessible for all, without any kind of barrier, but this is not always a truth, the technology opens doors, however in many cases also implies difficulties. Repositories (Tránsito Ferreras-Fernández & Merlo-Vega, 2015; T. Ferreras-Fernández, Merlo-Vega, & García-Peñalvo, 2013; García-Peñalvo, Merlo-Vega, et al., 2010; López, García-Peñalvo, & Pernías, 2005), referring them with a wider scope, are the most used way to store, indexing and spreading the open contents. Repositories are key elements in new scientific ecosystems (García-Holgado, García-Peñalvo, & Rodríguez-Conde, 2015; García-Peñalvo et al., 2017), but these are not designed for researchers or learners and present a lack of user experience (González Pérez, Ramírez-Montoya, & García-Peñalvo, 2016a, 2016b) and a high cost to be deployed and maintained (Ferreras Fernández, 2016).
4. **Technology**. Technology is the driver to develop an Open Education strategy. Technology is presented in every pillar of the strategy, but now it should be introduced as other kind of content, that is means software content (García-Peñalvo & García-Holgado, 2017). Open Software has represented an important and essential way to improve social, knowledge and research development. Computers and software applications cover all the significant domains without to buy expensive licenses. This is especially important in education. Of course, open software does not mean without any kind of cost and also implies maintenance and support risks.
5. **Research**. Open Science, eScience, Science 2.0 means the democratization of knowledge (Ramírez-Montoya & García-Peñalvo, 2018). Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (Max-Planck-Gesellschaft Society, 2003) is one of the milestones of the Open Access movement. Establishing open access as a worthwhile procedure ideally requires the active commitment of each and every individual producer of scientific knowledge and holder of cultural heritage. Open access contributions include original scientific research results, raw data and metadata, source materials, digital representations of pictorial and graphical materials and scholarly multimedia material. Open Science means both sharing (the datasets and the final outcomes – the papers) and participation (Merlo, 2009). An Open Science framework is a very complicate structure (European Commission, 2017) that has to face the researchers' myths (García-Peñalvo, 2017b) and the editorial lobby.
6. **Policy**. To define an Open Education policy is mandatory having a strong compromise of the implied institutions and governments, in order to define de accessibility rules, ensure the property rights, define the institutional procedures and make the right decisions to achieve the expected results (Ramírez Montoya, 2015).

These ideas are reflected in the conceptual map in the Figure 1.

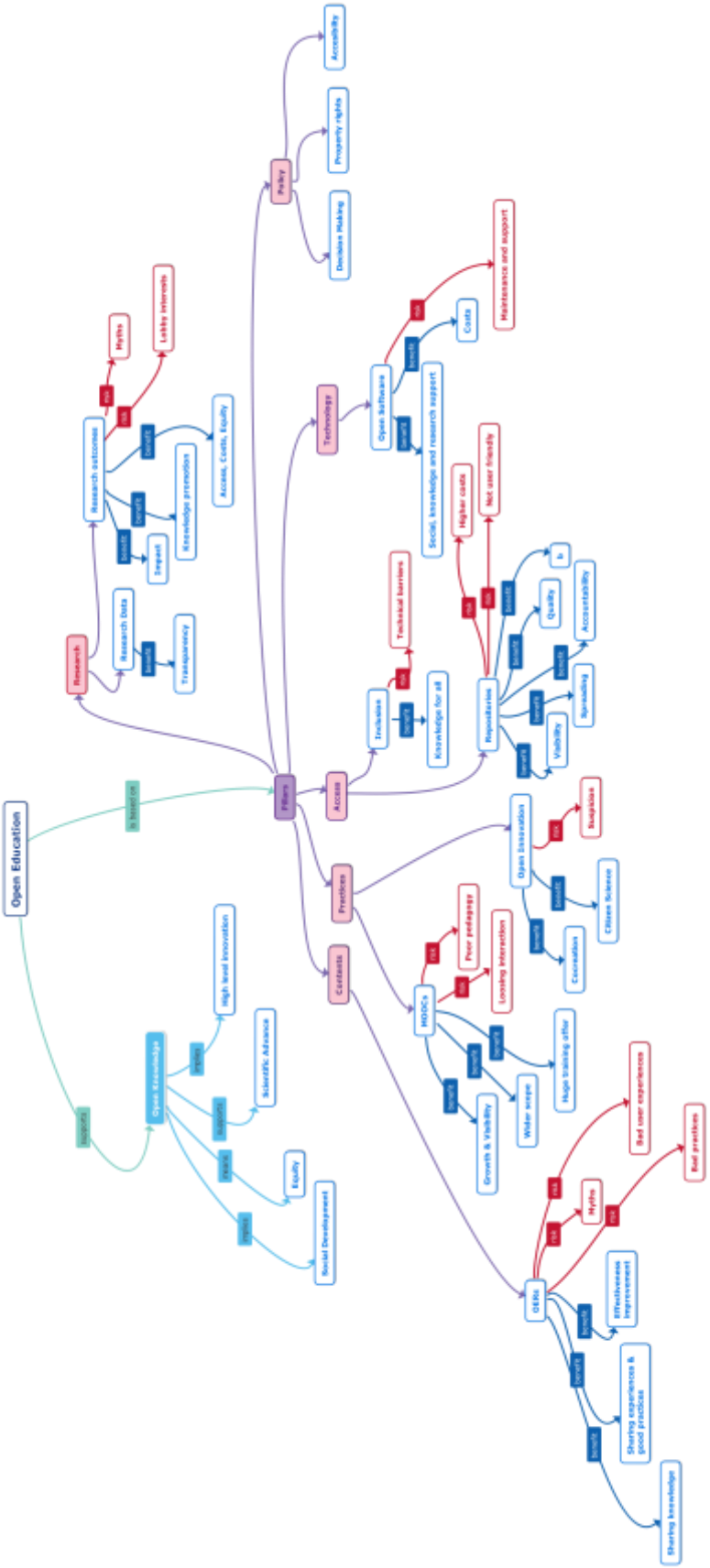

Figure 1. Open Education conceptual map

Keywords
Open Education; Open Knowledge; Open Contents; Open Practices; MOOC; Open Innovation; Open Science

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