Excellence in Africa

Training the next generation of African researchers

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MOOCs and OERs: a response to the COVID-19 crisis

May 14, 2020
Program Excellence in Africa

THE THREE PILLARS OF THE 7-YEAR PROGRAM
A joint initiative of UM6P and EPFL

JUNIOR FACULTY DEVELOPMENT

100 (70+30) PhD FOR AFRICA

DIGITAL EDUCATION
Online courses in response to the COVID-19 crisis

In a nutshell:

1. The proposal to partner universities
2. The list of proposed online digital resources
   - Presentation of the MOOCs of the digital "prépa" courses
3. How to use online courses in formal education
4. The awareness and support program
5. Conditions of participation: Institutional commitment and timetable of operations
The proposal to partner universities

- Need for pedagogical continuity via distance learning
- Lack of time to create new devices or adapt existing courses for distance learning
- Quality content exists in various forms
- Objective:
  - Help institutions and teachers to make effective use of existing resources to deal with the crisis induced by the COVID-19
The proposed digital resources

- EPFL MOOCs on the UM6P platform
- UM6P's digital “prépa” courses
The proposed digital resources

- 43 MOOCs
  - 20 MOOCs in English
  - 23 MOOCs in French

- Topics
  - Architecture
  - Engineering
  - Sciences

MOOCs and OERs: a response to the COVID-19 crisis - May 14, 2020
The proposed digital resources
The MOOC in brief 1/4

Conceptualization en 2008 – Democratization en 2012

- Massive (maybe)
- Open (more or less)
- Online (yes)
- Course (sort of)
The MOOC in brief 2/4

Multiple Parameter Lists

The definition of functions that return functions is so useful in functional programming that there is a whole library package called Control.Monad.

For example, the following definition of sum is quite concise compared with the nested sum function, but shorter!

```
def sum(f: Int => Int)(a: Int, b: Int): Int = map
  if (a > b) 1
  else f(a) * product(f)(a + 1, b)
product(x => x * x)(3, 4)
```

```
def fact(n: Int) = product(x => x)(1, n)
fact(5) > res1: Int = 120
```

```
def mapReduce(f: Int => Int, combine: (Int, Int) => Int, zero: Int)(a: Int, b: Int): Int = if (a > b) zero
  else combine(f(a), mapReduce(f, combine, zero)(a+1, b))
mapReduce(f, combine, zero)(1, 2)
```

店主
Anatomy of a MOOC

- A course segmented into weeks
- Short Videos (5 x 7-12 minutes)
- Speed control and inline quizzes
Peers’ evaluation
When automatic evaluation is not possible

- Option: Option: train students to evaluate
- Advantage: Evaluation is an effective learning activity
Definition of a pedagogical scenario

- Self-learning and validation of objectives
- The teacher as distance moderator of the online course
- Total or partial integration into an existing lecture
- The flipped classroom
Integration of MOOCs and OERs

Teaching configurations

Status quo
- Have an ex cathedra lecture
- Video as an optional complement
- Students use the video as an OER
  + does not require self-directed students
  - decoupled from online activity

Flipped classroom
- Mandatorily watch video before the class
- Organize sessions to deepen knowledge
- Best format has to be optimized
- Students are better prepared for exercises
  + More effective learning
  - Costly in human coaching and logistics
Inform and train

- Academic leaders to the options presented
  - Seminar explaining the content offered, the different pedagogical scenarios and the implications for the institution and teachers.

Train and coach

- Teachers at the realization of their pedagogical project
  - 5 seminars and a one-week remote monitoring by experts to train and assist teachers in the use of available teaching resources.
Institutional commitment

- Appointment of focal points for organisation and monitoring: an academic manager and an IT manager
- Institutional information to teachers with collection and consolidation of their needs
- Adaptation of academic policies for online teaching
- Identification of infrastructure needs for the successful implementation of the institutional project
Schedule of operations 1/2

- **Webinar No 2: The use of MOOCs/OERs in Higher Education**
  - **Target**: Focal points, Heads of digital education
  - **Date**: 20 May 2020 / 10:00 UTC
  - **Objectives**: To gain a good understanding of the following points:
    - Pedagogical scenario for integrating MOOCs and OERs
    - Modalities for identifying the anchor points of an instructional grain in an existing course.
    - Identification of pedagogical needs among teachers.
    - Identification of infrastructure needs for the operationalization of the project.
    - Timeline for the organization of teacher training workshops.
Schedule of operations 2/2

- Webinars No 3-7: Training and coaching of teachers in the use of digital resources in their courses
  - **Target:** Teachers, Project Focal Points
  - **Dates:** 25 to 29 May 2020 (to be confirmed) / 10:00 UTC
  - **Objectives:** To script, launch and successfully continue a pedagogical project integrating a MOOC or OER into an existing course.
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