TeachEng, a Multi-Paradigm MOOCs Provider Platform to Teach Future Engineers

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Abstract

MOOCs platforms propose courses in various subjects ranging from engineering to philosophy through business and management. They can be qualified as general-purpose MOOC platforms, which aim at reaching the largest public. Recently, specific platforms emerged, targeting a reduced and well-identified public. This paper is about a new multi-paradigm MOOCs platform targeted to future engineers which proposes public and private courses to support teaching for students, lifelong learning for graduated engineers and trainings for professors. The paper briefly presents this specialised platform and how it has been set-up.

Keywords

MOOCs platform, Engineering, SPOC, Lifelong learning

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1   Introduction

Several existing *general-purpose MOOCs platforms* (GPMP) propose a wide range of courses whose subjects are ranging from engineering to philosophy through business and management. Such MOOCs providers include edX, Coursera and Udacity (TANEJA & GOEL, 2014). The main paradigm of such platforms is to reach the largest possible audience by proposing a lot of courses in many domains. Keeping the proposed courses not too similar, while increasing the number of courses is quite contradictory. Is therefore the future of MOOCs threatened? A recent tendency sees the emergence of *specific MOOCs platforms* (SMP). For example, the Fun platform proposes courses for French-speaking learners. This paper presents the *TeachEng* project, and the different paradigms that build it up. The platform is targeted to three different audiences: students in engineering, graduated engineers and professors. The remainder of the paper presents the *TeachEng* project, its structure and the goals behind it.

2   TeachEng Project

The *TeachEng* project consists in the development and deployment of a MOOCs provider platform that gathers courses targeted to students in engineering and graduated engineers. *TeachEng* is a multi-paradigms platform which serves several orthogonal but coherent goals. *TeachEng* /ti ːtʃeɪndʒ/ is the contraction of *"Teach Exchange"* /ti ːtʃ ɛks' tʃeɪndʒ/ since the platform is to be used for exchanges between students, professors and industrials. It is also the abbreviation of *"Teach Engineering"*, to be understood as:

- *Teach Engineers* since it is used to teach engineering-related subjects;
- *Teach me Engineering* since it allows everyone to train itself in engineering or to update itself.

2.1   Platform goals

The three publics the platform is targeted to are also providing content for it:

- graduated engineers can propose trainings about subjects related to their professional experience to students and to professors;

- professors can propose courses or tutorials to students or to graduated engineers for lifelong learning;
- and finally, students can also build courses or tutorials in the frame of projects, for example, or to build remediation material to be used by other students.

The *TeachEng* project is built to satisfy five goals involving the three aforementioned publics that are the main actors of the platform, as consumers as well as producers. The five subprojects composing the main *TeachEng* project are the following:

- *Short courses for students*, to be integrated in their programs, will be the opportunity for them to open their mind to subjects not included in their programs. It is also the opportunity for the school to test new subjects that could be integrated in the future, with a reduced risk.
- Proposing *trainings for graduated engineers and professors* in a lifelong learning approach. These trainings, built by professors and industrials, provide an opportunity to stay up-to-date and to align the training proposed by the school with what is done in the industry.
- Proposing some of the existing courses in the form of a MOOC, especially for *transfer students* that cannot always follow all the courses they have to take due to schedule issues.
- Proposing *introductory courses for secondary school students*, to prepare them to enter higher education. It is at the same time an opportunity to advertise the school and for the future students to improve their initial level.
- Proposing to professors to include *e-learning activities* in their courses by developing short SPOCs.

The main common point between all these subprojects is that the proposed courses must be relevant for an engineer, ranging from technical courses about stability, electronics, chemical sciences, physics or informatics to management, economics and communication. The second common point is that all the subprojects offer an opportunity to open one's mind, to satisfy one's curiosity and to learn new subjects.

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2.2 Course lifecycle

The courses proposed on the platform, for the five subprojects, are first proposed as SPOCs and then eventually opened to the world as MOOCs. This lifecycle follows the one proposed in (COMBÉFIS & VAN ROY, 2015; COMBÉFIS, BIBAL & VAN ROY, 2014) where a course gradually becomes a MOOC after a SPOC phase where it gets tested and evaluated by learners. Some courses, in particular those proposed by industrials, may remain privates for confidentiality or intellectual property reasons. An optional intermediate phase consists in opening the SPOC not only to students but also to anyone upon registration (employees of partner firms, for example).

3 Conclusion

To conclude, this paper presents a MOOCs provider platform, different from the widespread general-purpose MOOCs platform, that gathers several paradigms into a coherent whole.

The proposed courses target a specific public, that is, graduated engineers, students in engineering and their professors. Moreover, these courses are first proposed privately to serve specific internal purposes before being opened to the world. The platform is therefore different from the big ones (edx, Coursera, Udacity…).

We think that this kind of platform will continue to emerge as one possible solution to ensure a future for MOOCs and their sustainability. More specific MOOCs platforms will continue to appear, to learn languages, subjects specific to a country or region… One important aspect to take into account to the success of such platforms is to foresee a way to finally open the proposed courses to the world.

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