

Learning scenarios in the initial teacher education: designing a MOOC

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Abstract. The present work in progress focuses on the description of the design process of a Massive Open Online Course (MOOC) for teachers about the topic of learning scenarios, under the scope of the Project Technology Enhanced Learning @ Future Teacher Education Lab (TEL@FTELab) of the Institute of Education of University of Lisbon. The design process of the MOOC is based on the quality criteria provided by OpenupEd, specifically in the "Checklist 2 - Quality of the design of MOOC" [4], organized in eight dimensions: (i) target group; (ii) overall goal; (iii) learning objectives; (iv) learning activities; (v) feedback mechanism; (vi) study-time; (vii) workload; (ix) assessment. At the end of the course it is expected to check the dimensions and the guidelines referred to above and apply a questionnaire assessing the satisfaction of course participants, in order to identify the aspects to be improved in future editions of the MOOC.

Keywords: Learning Scenarios, Teacher Education, MOOC.

1 Introduction

1.1 Description of the TEL@FTELab project

In a society where technology is becoming more often as an extension of our daily life, its inclusion in schools it may be seen as a natural process. When thinking about the future of education is necessary to take into account these changes in society. However, it is not always clear that those changes happen in the desired pace.

The Project TEL@FTELab, which started in January 2016 and has a duration of three years, has the main goal to rethink initial teacher education for the future schools, helping to “constitute a specially designed learning space for promoting the

skills that teachers need to have to proficiently act as professionals in these future environments” [1]. During the three years we have distinct phases: phase I is focused with the design and setup of FTELab, training modules and the development of a 3D 21st century teacher skills framework; phase II is set for piloting the training modules, which includes the co design of learning scenarios between teacher educators and student teachers and its experimentation in real secondary school classes of Biology, Informatics, Mathematics and Physics; in phase III the collected data is analyzed in order to produce a set of video cases, refined training modules and learning scenarios which, together with the 3D framework, compose the Teacher Education Toolkit delivered.

Within this scope and the activities of the TEL@FTELab project, the idea of developing the *MOOC Learning scenarios for present and future teachers* is one of the strategies defined to create awareness among teachers about the topic of designing learning spaces. Moreover, this MOOC can also provide the proper tools to support teachers to rethink their own classrooms into settings that they are not used to.

1.2 Learning scenarios on TEL@FTELab: characteristics and relevance

The TEL@FTELab project adopts the powerful idea of learning scenario as a key structuring resource for teacher education. The learning scenario concept is a hypothetical situation of teaching-learning (purely imagined or with real substrate, widely changeable) composed of a set of elements that (i) describes the context in which learning takes place, and (ii) the environment in which learning happens. Each learning scenario is conditioned by numerous factors, as knowledge domain, roles played by the different agents (students and teachers) and sequences of learning events.

A learning scenario must assume a set of characteristics [7]:

- **Innovation** - a scenario should be designed to demonstrate possible innovative activities and not to provide prescriptive plans to teachers.
- **Transformation** - a scenario should encourage teachers to experiment with changes in their pedagogical practices and teaching and assessment methods and to bring about innovative educational experiences with success.
- **Foresight** - a scenario should be considered as a planning tool used to think on innovative ways of looking ahead and making appropriate decisions regarding uncertain conditions.
- **Imagination** - a scenario should always be a source of inspiration and nurturing the creativity of the teacher.
- **Adaptability** - a scenario should not be presented in a rigid way. It is up to the teacher to adapt it to its objectives and the characteristics of its students.
- **Flexibility** - A scenario should provide options targeting different learning styles and individual teaching styles. Teachers can use it at an elementary level or make it more complex.
- **Amplitude** - a scenario must be constructed in order to have a greater or lesser extent. The actors' role may be confined only to the level of operations and actions or intended to be active participants in the entire activity system. Scenarios may in-

clude multidisciplinary projects to be worked on by students over extended periods of time.

- **Collaboration** - a scenario may contain elements to the accomplishment of collaborative activities (synchronous and asynchronous), including technological tools that facilitate sharing and collaborative construction of objects.

Therefore, learning scenarios on TEL@FTELab project are structured through trajectories using interactive tools mostly based on mobile technology. Those trajectories are constituted by activity proposals to explore, in a stimulating and challenging form, key ideas in teaching of the disciplinary areas of piloting (e.g. Biology).

2 The MOOC Learning scenarios for present and future teachers

Among the different strategies of this project to create awareness, the MOOC seems to have more potential since it is an “online course designed for large number of participants that can be accessed by almost anyone anywhere, as long as they have an internet connection, is open to everyone without entry qualifications and offers a full/complete course experience online for free.” [2].

To merely have access to information, might not be enough to grasp the potential use of the material created during the project. By setting it as a MOOC, it allows us to provide more guidance, scaffolding the necessary skills that the current and future teacher need to rethink their classroom environment. Besides the importance of having a massive course which can be accessed with low restrictions, it is also important to have Open Educational Resources (OERs); in other words, to have “learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits non-cost access, use, adaptation and redistribution by others with no or limited restrictions” [3]. In fact, the material previously created in the scope of the project has the license Creative Commons "Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)". By introducing the OER created, we are allowing the sharing of knowledge, stimulating the reflection about the utility of learning scenarios and enabling access to any participant.

Concerning the instructional design process, we adopted the guidelines provided in the OpenupEd framework, created in 2013 by the European Association of Distance Teaching Universities (EADTU), in collaboration with the European Commission. In this regard, our MOOC respect the features recommended by OpenupEd, namely the openness: the course it is open and learner-centered and it aid students to construct their own learning from a rich environment, and to share and communicate it with others.

2.1 OpenupEd - Quality of the design of MOOC

As already mentioned, the design of the *MOOC Learning scenarios for present and future teachers* is based on the quality criteria provided by OpenupEd, specifically in the "Checklist 2: Quality of the design of MOOC" [4], organized into eight dimensions:

- **Target group** - the MOOC are accessible to all people and as such various target groups are identified. For each target group the needs, challenges and prior knowledge are described.
- **Overall goal** - the overall objective of the MOOC is described in a few sentences.
- **Learning objectives** - the MOOC describes a limited number of learning objectives and a clear statement of learning outcomes for both knowledge and skills is provided. There is reasoned coherence between learning outcomes, course content, teaching strategy, and assessment methods. The prior knowledge of each learning objective is described and related to characteristics of target groups.
- **Learning activities** - the activities aid participants to construct their own learning and to communicate it to others. The activities, tasks and routes are designed in such a way that they can be performed at different levels of difficulty or complexity, to account for the broad spectrum of participants' knowledge and skills that is expected. The MOOC contains differing levels of difficulty, with different learning pathways and various activities are proposed with different formats. The MOOC contains sufficient interactivity (learner-to-content, learner-to-learner or learner-to-teacher) to encourage active engagement.
- **Feedback mechanism** - the feedback by an academic tutor is limited and scalable. The MOOC provides learners with regular feedback through self-assessment activities, tests or peer feedback. Weekly announcements or mass mailing with orientations for the following week is planned. In each weekly session, the pedagogical team makes a synthesis of artefacts from the previous week's session. The frequency of monitoring is planned and are some live-events scheduled.
- **Study-time** - the total study time of all learning activities is minimal 1 ECTS (25-30 hours of study).
- **Workload** - the schedule of the MOOC is such that the workload per week is feasible for typical learners from the specified target group (typical 6-8 hours for those with full-time jobs). The MOOC is realistic in its pacing for the participant, accommodating to the individual's personal rhythm.
- **Assessment** - the learning outcomes are assessed using a balance of formative and summative assessment appropriate to the level of certification, and the assessment is explicit, fair, valid and reliable. Measures appropriate to the level of certification are in place to counter impersonation and plagiarism. The MOOC has possibilities to follow the score and progression and participants can earn badges for completion of learning activities.

By following the guidelines outlined above, the team opted to define the target audience, objectives and course structure in a timely manner, in order to guide the rest of the design process. The course is intended for all teachers interested in acquiring and / or developing skills in the subject of learning scenarios and has a modular struc-

ture, divided into 4 modules: (i) planification, (ii) production, (iii) implementation and (iv) evaluation. The modules will be designed according to the principles of openness, accessibility and digital inclusion. The interaction between course's participants is expected to take place in online social networks (e.g. Facebook, LinkedIn, Youtube, etc.), allowing knowledge distribution as advocated by the connectivist pedagogy [5]. The activities will be proposed with different formats, such as peer-to-peer, discussions, quizzes, etc.

3 Conclusion

The running of a MOOC seems to be a good option to create awareness among teachers about the topic of learning scenarios, and to provide the proper tools to support teachers with some guidance. Implementing and cultivating a MOOC designed for teachers will serve teachers' interests and objectives and may play a rather significant role to engage teachers in addressing seriously their own professional development [6].

To develop a MOOC is necessary to have tools, such as the ones provided by OpenupEd, to guide the process with the desirable quality. The TEL@FTE Lab Project team also recognizes the importance of evaluating the MOOC quality of the MOOC, to allowing to establish a continuous improvement action plan, which that allows the necessary adjustments, to formulate judgments and to make decisions based on them. Thus, at the end of the MOOC an evaluation will be made, based on the OpenupEd Checklist 3, which will be allowing to identify the dimensions and criteria that were not met and to make the necessary adjustments in future editions. Another aspect that is considered relevant is the participants' satisfaction evaluation.

It should also be noted that OpenupEd makes it possible to obtain a quality label. However, at this stage the purpose it is only intended to use these tools available as guidelines for the course design and evaluation, also allowing to identify the areas deserving of improvement through the final evaluation of the course.

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References

1. Pedro, N., Baeta, P., Paio, A., Matos, J.F.: Redesigning classrooms for the future: gathering inputs from students, teachers and designers. In: INTED2017 Proceedings, pp. 7908-7917. IATED, Valencia (2017).
2. Brouns, F., Mota, J., Morgado, L., Jansen, D., Fano, S., Silva, A., Teixeira, A.: A networked learning framework for effective MOOC design: the ECO project approach. In: A. M.

Teixeira, A. Szücs (eds.) 8th EDEN RESEARCH WORKSHOP, Challenges for Research into Open & Distance Learning: Doing Things Better: Doing Better Things, pp. 161-171. Oxford, United Kingdom (2014).

3. Paris OER Declaration, http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/Events/Paris%20OER%20Declaration_01.pdf, last accessed 2017/08/24.
4. OpenupEd Homepage, <http://openuped.eu/>, last accessed 2017/08/24.
5. Cabral, P., Fonte, M., Pedro, N.: Digital open education, accessible and inclusive recourses: development of a MOCC at the University of Lisbon. In: Conference Proceedings of the 9th International Conference on Digital Exclusion in the Information and Knowledge Society, pp. 27-28. SEMiME, Lisbon (2015).
6. Matos, J.F., Pedro, N. & Pedro, A. (2017). Redesigning the Initial Teachers' Education Practices: Project FTE- Lab. Proceedings of INTED2017 Conference, Valencia, Spain (pp.7918-7925).
7. Matos, J.F. (2010). Princípios Orientadores para o desenho de Cenários de Aprendizagem. Lisboa: Projeto LEARN.