



onTrain

Online Training, the treasure within

C. Course design
9. Scalability in Online Courses

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Co-funded by the
Erasmus+ Programme
of the European Union

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein. Project reference: 2018-1-ES01-KA204-050702

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Let's start



Online courses, in comparison to face-to-face learning, present many advantages and one of the main remarkable ones is scalability. Not only online courses allow the professor/instructor to reduce costs but also to recycle materials and to fit a major audience, without expending more resources. In this sense, the degree to which an online course can be designated to accommodate larger sections of online courses depends on the delivery methods and the amount of resources available to support the instructor role. Even this is not the most important aspect of education, we have to be aware that cost and money is something that every institution considers.

What am I learning here and why?

In this learning unit we want to show that the online trainer not only is aware of the advantages of using online courses, but also knows exactly how to properly exploit the scalability that online instruction offers. When preparing the online materials to be used in an online course, we need to take into account two main principles: adaptation and reutilisation. At first, it might seem that we are spending much time preparing online content (such as videos, questionnaires, etc.), however the materials created can be further reused as many times and needed, thus the time employed is worth it. Therefore, we will learn how to create a scalable online course without dropping quality of instruction.

What content will I find here?

The learners will learn more about the principles and advantages of online instruction. At the end of this learning unit, you will know what the benefits of online courses are and be able to further using it when developing your online courses from the perspective of scalability and reuse. The prime example of online scalable courses are MOOCs, but the rules stated when designing materials are further applicable in other kind of online courses or similar environments. Also, you will have a first insight into Intelligent Tutorial Systems (ITS).

MOOCs

You might already be familiar with the concept "MOOCs". Those are Massive Open Online Courses with no limit for participants' registration and downloadable materials are free. This is a new way to share, spread and boost knowledge among the net through global classrooms. MOOCs present a flexible course structure, so the coursework is generally self-paced. However, if the learner wants to get a certificate, he/she might have more loads of work and a more definite structure that can be controlled through the performance of activities or grading.

Comentado [1]: better: Learner

Comentado [2]: OK

Scalability in MOOCs

As previously mentioned, MOOCs consider larger number of participants, thus the concept of scalability is of great importance to ensure the success and running of these courses. Terwiesch & Ulrich, 14, defined scalability as “the respectable processes delivering identical products or services with an emphasis on efficiency and effectiveness assuming a simple in-out delivery model of learning”. One of the primary benefits of MOOCs is that they are scalable, but this does not mean we need to give up on providing quality education.



Scalability in MOOCs seems to rest on two key assumptions, the first one is that any individual learner can adapt the instructional experience to their needs and second, that the technologies used are scalable and solid. However, this is not enough. When providing education on a large scale it is not only challenging for teachers to support learners in achieving their learning goals but also to assess whether they did not achieve them. As becomes clear, the alignment aspect is an overarching quality aspect of the course design in its entirety. It is important to focus on the alignment between intended learning outcomes, learning activities and assessment because it is the backbone of the course design and it enables learners to choose a MOOC in line with their goals and helps the learners to keep motivated and regulate their learning.

Proposal: Principles of scalability

When we design a course and spend a lot of time preparing the activities, uploading materials, even creating its structure and defining an organisation, we want to be able to reuse it as many times as possible. To be able to create and subsequently, offer a quality online course, instructors need to take into account the following tips:

- Plan and propose activities that require low teacher interaction, i.e. mainly self-organised group activities. You can group learners according to their interests to create heterogeneous groups, that will depend on the interest of the teacher/instructor. The cluster of groups can be made automatically via the response of questionnaires.
- Assuming that the teacher/instructor is the facilitator/guide that will remain at the background, waiting and seeing what learners do. When having a high amount of participants in a course, the instructor should try to promote the collaboration among learners at the same time he/she remains less participative. Facilitator/guide remains expectant unless the learner asks for help.
- Keep it simple but focus on the materials used. We must include Power Points that can be easily editable (or cloud-based resources, easily updatable without requiring a publishing process). Professor/instructor should take into account constantly the learning process and subsequently, edit and update the materials, but not redo completely.
- When offering an online course, we should also be aware that an infrastructure needs to be provided. In the same way that a face-to-face classroom needs building, maintenance, janitors, etc. an online course needs a server (in a own host or cloud

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provided by a third company) and also to be maintained. This can be considered an inconvenience of the online teaching as it increases the cost (in terms of installation, maintenance, etc), but still compared to building a physical classroom and maintenance it is a huge save. In the effort of reducing costs, institutions remove tasks as the system maintenance, updates, backups and other regular activities that should be done. When doing that, we are not reducing costs, but increasing that, as when we have a security breach, server crash or any other problem, the cost to solve problems instead preventing them is not only very expensive, but also deteriorates the user perception of the online education as a whole.

- Think about the principle of reutilisation from the very beginning. When designing an online course and creating the first exercises/duties or structure, take into account that such activities will be used by other people in a near future.

Advantages of scalability



Scalability is paramount to contribute to competitiveness, efficiency and quality of an online course at the same time that instructor saves time, offering a self-paced education.

Reducing costs

Although the main focus of scalability is to offer a quality education, we cannot forget that one of the main advantages is that one of the tenets of online education is that it offers the possibility to reduce costs. Not only the professor can avoid the tough work of first searching and then renting a place but also he/she does not need to buy any materials, we do not need to have a physical infrastructure, and in the same time, we do not require teachers or learners to move.

Reaching a major audience

The number of *numerus clausus* increases while, at the same time, the costs are reduced. The way of operating of this online courses is optimal to reach people that in other scenarios would not be able to access education (because they live in rural areas, have difficulties to reach school/academics, economic/time problems or are disabled).

Recycling online materials

In order to be able to reuse learning materials, we need to:

- Find good sources relevant to the topics and to the audience.

- Select more specific parts of documents that could be reused such as tables, images with illustrative power that can be adapted for personalisation.
- Defining from the beginning a curriculum planning that fits this pedagogic approach: scalability.
- Keep a learning Open Learning Environment, so it is possible to reuse and integrate material created in another context since the system it is not strict.

Intelligent inbuilt teacher

” The progressive technification that is experiencing the educational world, and more specifically the debut of Intelligent Tutorial Systems, highly affects the role of the professor/instructor. Intelligent inbuilt teacher is an ICT-based learning tool that has appeared in online educational contexts and its main function is to determine the sequence and presentation of contents based on the learners' performance.

Far from seeming a tool that replaces the role of the instructor, it actually helps to boost the teacher's action. The intelligent inbuilt teacher is in charge of rather routine tasks such as sending reminders about upcoming events, deadlines, participation in forums, etc. Therefore, the teacher or course instructor can dedicate himself to meet the nurturing demands of the learners. An intelligent tutor offers support not only to the teacher but also to the learners by stimulating the learning process and collaboration among learners.

This tool takes into account the learners characteristics based on the result of a psychometric evaluation that the scheme analyses automatically, as well as the characteristics of content and activities.



One of the main principles of intelligent tutors is that they present information in a dynamic way. It differs from a traditional educational point of view where the teacher usually designs the activities in a rather static way. As Baker defends the aim of implementing intelligent tutors is not to create intelligent tutors but to create successful and intelligent learners.



Exercises

Exercise 1: Reflecting about MOOCs

After reading about scalability, MOOCs and Intelligent Tutorial Systems you should know more about these concepts now. Have in mind an online course you have recently participated (or the onTrain online course if you are doing it now) and try to answer following questions:

1. Do you think that our course fits the principles of scalability? Why or why not?
2. Would you consider implementing an intelligent inbuilt teacher in your online course? Why? What would you like this intelligent tutor to be capable of? How can it help you?

Exercise 2: Designing an online course



You are probably teaching a subject either in an institution, organisation, etc. but would you know how to create your own MOOC with your subject content? Think about it.

1. Which platform would you choose to host your MOOC? (Tip: use google to search existing platforms related to the topic you want to teach to inspire you)
2. Which would be your target audience? and how many people do you plan to teach? (Remember that MOOCs are open courses).
3. Are you planning to split participants up into several groups?
4. To which extent are you taking into account scalability when planning the curriculum?
5. Would your course be self-paced or are you planning to introduce a more strict methodology? How do you plan to engage your learners?
6. Do you consider including tests and activities to access other levels of the course?
7. What kind of educational resources will you include? (that is materials, tools or activities).

Summary



To make the most of the possibilities that online education offers nowadays, we must take into account the concept of scalability. MOOCs are the most common example where scalability is applied in online courses. When designing a course it is important to try to seize the resources available and materials created, so they need to be easily adaptable to large and changing audiences. The instructor will not waste as much time in administration work and will have the chance to focus on most relevant learners' demands.

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