What about the Competencies of Educators in the New Era of Digital Education?

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Abstract: A lot has been published about the competencies needed by students in the 21st century (Ravenscroft et al., 2012). However, equally important are the competencies needed by educators in the new era of digital education. We review the key competencies for educators in light of the new methods of teaching and learning proposed by Massive Open Online Courses (MOOCs) and their on-campus counterparts, Small Private Online Courses (SPOCs).

Summary

Salman Khan showed the world how it is possible to teach millions with just a video-capturing tool, a tablet, and some wit. His model was copied and extended by MOOC providers such as Udacity, Coursera, edX, and others. And this released a revolution in the education sector. Now there is of course much more than that: learning analytics tools, gamification features, animations and simulations to illustrate concepts, social tools for sharing questions and responses, etc. Moreover, similar technology has been used to improve on-campus education in the form of SPOCs (Small Private Online Courses). This new multimedia educational content can be used to complement lectures, help for remediation, expose top students to advanced content, and personalize the learning experience for all. And it has also given rise to new pedagogies, such as the Flipped Classroom model.

In a similar way that Information and Communication Technologies have disrupted the music industry, the news industry, and many other industries, these technologies are already disrupting educational practices. This means that blackboard and chalk, or projectors and slides are not the only tools for lecturing. And this implies that the educator has to acquire new competencies. Apart from being an expert in the domain, the educator has to master the new eco-system of knowledge transmission. This eco-system has many components. Here are some basic ones:

- creation of engaging multimedia material (media literacy),
- design of online quizzes with adequate hints,
- management of an online community of learners,
- definition of educational scenarios (Schuck, Aubusson, 2010) and useful learning designs (Mor et al., 2013).

Each of these components has many aspects for which educators have to be prepared.

Moreover, the possibility of teaching thousands of students at the same time through MOOCs comes at a time when digital data analytics tools are being applied with success in many industries. In less than a quarter of a century digital data has come from being 1 % of total data stored to become 99 % and in big quantities. Since technology allows processing large data sets in a reasonable time, and all the clicks can be captured when a student interacts with a digital platform, one can learn about how students learn and apply the best strategies for every learner individually. To be able to harness the findings of learning analytics tools to improve the teaching strategies is another relevant competency.

Does the faculty of the future need to be more like an actor/actress, become an engaging storyteller, have knowledge of video production, know how to prepare (possibly parametric) formative evaluations, be an expert community manager, and also a big data analyst, and all without losing the domain expertise? The objective of the presentation is not to give responses to all possible questions open at the moment with the digital revolution, but to pose some questions in order to encourage discussion.

It is clear that support personnel can take some of these roles. How this is done will depend to a large extent on what is possible in each individual institution. But this fact has another important implication: educators will not be so much an individual agent as they have been before, than a member of a larger team with whom they have to collaborate. The educators thus lose power and

control over their teaching. Negotiation and collaboration skills will be additional assets of good educators.

Finally, the design of a MOOC or a SPOC is a multifaceted endeavour. There are multiple parameters to take into account to create a rich learning experience. It is not enough to master the different components independently. One also needs to have a good overview of the interplay of these different components (Alario-Hoyos et al., 2014).

The context of educators is changing in the Internet era. To be effective and efficient they need to master the tools that are available and be able to act in an environment of multiple stakeholders. How well they are able to adapt to the new context will determine the quality of their teaching, and, on the long run, the welfare of society.

References

Alario-Hoyos, C., Pérez-Sanagustín, M., Cormier, D., Delgado-Kloos, C. (2014). Proposal for a Conceptual Framework for Educators to Describe and Design MOOCs, *Journal of Universal Computer Science, 20* (1), 6–23.

Ravenscroft, A., Lindstaedt, S., Delgado Kloos, C., Hernández-Leo, D. (2012). *21st Century Learning for 21st Century Skills* (Vol. 7563). Springer, Berlin Heidelberg. http://www.springerlink.com/index/10.1007/978-3-642-33263-0

Schuck, S., Aubusson, P. (2010). Educational scenarios for digital futures, *Learning, Media and Technology, 35* (3), 293–305.

Mor, Y., Craft, B., Hernández-Leo, D. (2013). The art and science of learning design. *Editoral. Research in Learning Technology*, 21 article 22513.

Biography

Carlos Delgado Kloos is full Professor and the Holder of the UNESCO Chair about *"Scalable Digital Education for All"* at the *Universidad Carlos III de Madrid*. He is also *Vice-Rector for Infrastructures and Environment*, an as such, in charge of defining the online strategy for the university. He has led the development of online flipped-class 0-courses at the university that used the *Khan Academy* platform for freshmen to review STEM subjects. Under his leadership the first three MOOCs of the university were carried out, which were deployed through the *MiríadaX* platform. He directed and participated in one of the MOOCs himself. He is also the Director of a Master's program on e-learning and the Coordinator of the Excellence network *eMadrid* about Technology-Enhanced Learning in the Region of Madrid <www.emadridnet.org>. He has further been General and Program Chair of the EC-TEL conference about Technology-Enhanced Learning <www.ec-tel.eu>, and more recently the Chair of the Experience Track of the *eMOOCs2014* conference <www.emoocs2014.eu>. He is mem-ber of the German *Gesellschaft für Informatik*, board member of *TEL-Spain*, senior member of *IEEE*, editorial board member of the journals *MOOCs Forum*, Springer *Formal Aspects of Computing* and *IEEE. Transactions of Learning Technologies*, and the Spanish representative at *IFIP TC3*.