

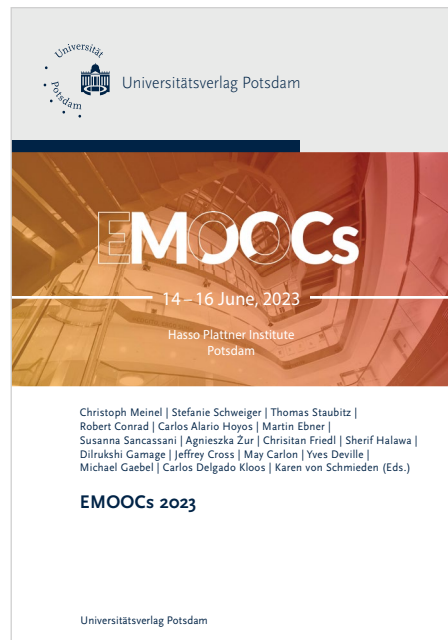
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Innovat MOOC

Teacher Training on Educational Innovation in Higher Education

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The COVID-19 pandemic has revealed the importance for university teachers to have adequate pedagogical and technological competences to cope with the various possible educational scenarios (face-to-face, online, hybrid, etc.), making use of appropriate active learning methodologies and supporting technologies to foster a more effective learning environment. In this context, the *InnovaT* project has been an important initiative to support the development of pedagogical and technological competences of university teachers in Latin America through several trainings aiming to promote teacher innovation. These trainings combined synchronous on-line training through webinars and workshops with asynchronous online training through the MOOC “Innovative Teaching in Higher Education.” This MOOC was released twice. The first run took place right during the lockdown of 2020, when Latin American teachers needed urgent training to move to emergency remote teaching overnight. The second run took place in 2022 with the return to face-to-face teaching and the implementation of hybrid educational models. This article shares the results of the design of the MOOC considering the constraints derived from the lockdowns applied in each country, the lessons learned from the delivery of such a MOOC to Latin American university teachers, and the results of the two runs of the MOOC.

1 Introduction

The COVID-19 pandemic forced many educational institutions to move to the so-called emergency remote teaching [16] overnight due to the social distancing restrictions imposed by the different countries [9]. This major shift presented three

types of challenges [4]: (a) technological challenges, such as the lack of devices and internet connection in the case of some teachers and students; (b) social challenges, such as the lack of appropriate space at home for teachers to teach online and for students to attend online classes and study; and (c) pedagogical challenges, such as the lack of digital competences of some teachers to teach their classes online, the need to urgently generate complementary interactive multimedia materials for learners, or the difficulties to adapt the assessment system to the lack of physical presence.

The lack of digital competences of teachers [13] was an issue that many universities had to address urgently due to COVID-19. The presence or absence of teachers' digital competences plays an important role both in students' level of learning and in the development of these digital competences by students [8]. In Europe, the European Framework for the Digital Competence of Educators (DigCompEdu) was already published before the pandemic as a self-perception diagnostic tool to measure teachers' digital competences [11]. Nonetheless, its adoption to make decisions about the training needs of teachers accelerated in the wake of the pandemic. In the case, for example, of Latin America, there is no single framework for measuring teachers' digital competences. In some cases, the UNESCO ICT Competency Framework for Teachers [15] or the above mentioned DigCompEdu framework [11] are used as a reference. In addition, it is important to note that the level of digital competences of Latin American university teachers varies greatly between countries and even within the same country, and that this is a topic that has been hardly addressed in the literature [14].

In this context emerges *InnovaT* [10], a capacity building in the field of higher education project co-funded by the Erasmus+ Programme of the European Union, aimed at fostering innovation in teaching and learning in Latin America, with a special focus on Peru and Chile but with an expected impact on the whole region. This project was designed before the pandemic but was implemented mainly during the pandemic, requiring the adaptation of activities initially planned in a face-to-face format to an online format. Three main training actions were carried out in the project after this adaptation [10]: (1) a series of online webinars, (2) the MOOC "Innovative Teaching in Higher Education", and (3) a series of online exploratory workshops. The three training activities were carried out sequentially, using the output of each activity as input to the next one. This article focuses on the MOOC, sharing the results of designing and running it twice, the first one during the lockdowns applied to most countries in 2020, presenting some of the main lessons learned, and the results obtained.

2 Innovative teaching in higher education

The MOOC “Innovative Teaching in Higher Education” was designed in collaboration between the three European universities involved in the InnovaT project, FH Joanneum University of Applied Sciences (FHJ) in Austria, Breda University of Applied Sciences (BUAs) in the Netherlands, and Universidad Carlos III de Madrid (UC3M) in Spain. This MOOC had six modules (weeks): (1) “How to be an innovative teacher”; (2) “Design thinking, co-creation, and innovative games”; (3) “Exposition”; (4) “Interaction”; (5) “Project-based learning”; and (6) “Innovative assessment systems and portfolios”. The first two modules were designed by BUAs, the following two by UC3M, and the last two by FHJ. The overall workload of the MOOC was equivalent to 1 ECTS (weekly students’ workload of approximately 5 hours). The MOOC was intensive in audio-visual content with 70 short videos with the core content, plus weekly wrap-up videos, as well as infographics and additional reading materials [1]. The MOOC was also intensive in exercises with more than 100 formative assessment activities plus summative assessment activities [1]. These summative assessment activities included quizzes and a peer-assessment activity with the purpose to design an innovative syllabus using the knowledge and skills gained in the MOOC. 60 points out of 100 were required to pass the MOOC. The MOOC was offered in Spanish. Some videos were recorded in English but included Spanish subtitles. All exercises and complementary activities were in Spanish. The MOOC was deployed on edX Edge, an auxiliary platform hosted and maintained by edX, with functionality equivalent to that of edX, and used by many universities in the edX consortium to deliver some of their MOOCs, especially when they are in a pilot phase.

The MOOC began to be designed at the beginning of 2020, although this design was affected by the pandemic. More specifically, the MOOC had to be reformulated in response to the need to strengthen the pedagogical and technological competences of Latin American university teachers due to the fast transition to emergency remote teaching that took place in March 2020. Meetings were organized with the Latin American universities participating in the project (three from Peru and three from Chile), involving them in the design of the MOOC. The results of the series of online webinars that took place in May 2020, which replaced the face-to-face training activities planned for that time, were also considered in the design of the MOOC.

The biggest difficulties encountered during the design of the MOOC and the creation of the contents were mainly related to the strict lockdowns undergone in Europe in spring 2020. Firstly, the lack of experience in MOOCs by several of the European partners led to the need for frequent online meetings (replacing scheduled onsite meetings) to try to align the course content and structure. Secondly,

the additional overload on university teachers resulting from the quick transition to emergency remote teaching led to the need to reorganize the planned schedule for the MOOC. For example, challenges were experienced with the times to translate the subtitles of videos recorded in English into Spanish as well as with the translation of other materials. Thirdly, the closure of the universities prevented the recording of videos for the MOOC in the facilities of the universities, requiring the recording of videos from home in some cases, or waiting until the universities reopened in some other cases. These difficulties were successfully resolved with increased coordination and the willingness of the project partners to cooperate.

The MOOC was released twice. The first run took place between June 16th and July 30th 2020 [5] (during the pandemic). The second run took place between June 14th and July 31st 2022 [6] (after the pandemic). The contents of the second edition of the MOOC were revised based on the results obtained in the first edition, adjusting both videos and exercises.

3 Results

The two runs of the MOOC had a total of 2340 registered participants (see Table 1); 408 (17.4 %) of them received the certificate for having passed the course. This percentage is higher than the usual completion rates for this type of courses [12]. It is worth noting a higher number of registered participants and certificates issued in the first run, possibly due to the lockdown period in Latin America and the high demand for training on the topic of the MOOC at this time.

Table 1: Number of registered participants and certificates issued in the two runs of the MOOC. The gender of the participants who received a certificate is also indicated

	Registered participants	Certificates issued	
First run (2020)	1339	236 (17.6 %)	138 (female), 97 (male), 1 (other)
Second run (2022)	1001	172 (17.2 %)	75 (female), 90 (male), 2 (other), 5 (not reported)
TOTAL	2340	408 (17.4 %)	213 (female), 187 (male), 3 (other), 5 (not reported)

Teachers from 24 countries registered in the first run of the MOOC, mainly from Latin American countries, with Peru (66.8 %) and Chile (22.7 %) leading the ranking [2]. This was mainly due to the dissemination efforts made by the Latin American partners of the *InnovaT* project (all of them from Peru and Chile) with their teachers and with other teachers from other higher education institutions in their own countries. Teachers from ten countries registered in the second run of the MOOC, once again mainly from Latin American countries, but this time with Colombia (50.1 %), Peru (19.9 %), Chile (18.4 %), Ecuador (5.4 %), and Honduras (4 %) leading the ranking. This second time the dissemination efforts went beyond the countries of the *InnovaT* consortium, taking advantage of other existing Latin American networks, such as the PROF-XXI network [7], for promotion purposes.

A survey was used for the evaluation of the quality of MOOC. This survey was completed by the participants at the end of the course, so the results have the usual positive bias of data collected through surveys in this type of courses since students who drop out of the course do not give their opinion on the course. This survey was completed by 394 participants from 15 countries considering the two runs of the MOOC (236 in the first run and 158 in the second run) [3]. Peru (46.4 %), Chile (27.7 %) and Colombia (17.8 %) were the countries with the highest numbers of respondents. Table 2 shows the participants' ratings of the quality and usefulness of the content presented in the MOOC for each of the six modules (scale from one to five). The results show a very positive rating both on quality and usefulness of the content. This is true for each of the two runs of the MOOC and in aggregate.

Table 2: Assessment by MOOC participants of the quality of the content and usefulness of the content per module (scale from one minimum to five maximum)

	Quality of the content	Usefulness of the content
Module 1	4.48 (SD=0.74)	4.58 (SD=0.68)
Module 2	4.53 (SD=0.73)	4.6 (SD=0.68)
Module 3	4.75 (SD=0.5)	4.72 (SD=0.55)
Module 4	4.76 (SD=0.48)	4.79 (SD=0.49)
Module 5	4.75 (SD=0.51)	4.72 (SD=0.55)
Module 6	4.41 (SD=0.78)	4.54 (SD=0.74)
TOTAL	1 (SD=0.65)	66 (SD=0.63)

Regarding the organization of the MOOC, 93.7 % of the respondents indicated that the navigation through the home page of the course was easy or very easy (on a scale of five levels – very difficult, difficult, neutral, easy, very easy). Similarly, 94.4 %

of the respondents indicated that the navigation through the different modules of the course was easy or very easy. Positive results were also obtained when assessing the individual components of the course, with 95.7% of the respondents considering the use of the videos easy or very easy, 88.1% of them considering the use of assessment activities easy or very easy, 70.8% of them considering the use of the peer assessment activity easy or very easy, and 82.2% of them considering the use of the forum easy or very easy. These results were obtained although most of the participants had no experience with the platform in which the MOOC was offered. Finally, 99.5% of the respondents indicated that they would recommend this MOOC.

4 Lessons Learned

The data collected from participants' responses to the final survey lead us to pose ten lessons learned from the design and running of this MOOC, although some of these could be extrapolated to equivalent situations: (1) *calculate accurately student workload*, especially when the MOOC is implemented as a collaboration among several institutions (some students complained in the first run of the MOOC that the workload was way higher than the originally estimated 1 ECTS); (2) *be sensitive to deadlines*, especially in exceptional situations such as those derived from a disaster situation like a worldwide pandemic (the additional workload resulting from the lockdown and transition to emergency remote teaching meant that many teachers participating in the MOOC needed some extra time to complete the summative assessment activities scheduled in the MOOC); (3) *be careful with translations*, especially if the MOOC is aimed at a target group that may have low or medium English proficiency (this requires extra planning and effort to be thorough with the translation, in the case of this course from English to Spanish in some modules) (4) *do not neglect summative assessment activities*, especially try to avoid rote questions or fill-in-the-blanks questions that expect a very specific concept as the answer (poorly designed summative assessment activities may strongly disengage participants); (5) *be aware of the different backgrounds in participants*, especially in a transversal course such as this one aimed at university teachers coming from different areas of knowledge (this requires approaching examples and practical exercises from several angles); (6) *seek the right level of depth in explanations*, especially on those topics that may be of greater interest to the target audience (the last module on innovative assessment systems and portfolios was on a very high demand at the time this MOOC was released for the first time); (7) *take special care of participant engagement*, especially in the more passive part of the course like videos (this requires, for example, carefully planning the scripts of the videos

so that these follow best practices, like an adequate duration); (8) *identify clearly core content and complementary content*, especially if the students' workload in the MOOC is expected to be high (this requires proper indications and guidance to the students so that they can better organize their time spent in the MOOC); (9) *handle the notifications sent to students properly*, especially in the case of latecomers who might have missed previous communication from instructors (this demands allocating a visible space in the course to published all the previous notifications sent); and (10) *explain in detail the summative peer assessment activities*, especially if your target audience is not familiar with this type of activity (this activity demands greater complexity, coordination and attention to deadlines).

5 Conclusions

This article presents a successful case of the MOOC Educational Innovation in Higher Education, designed from Europe by experts in the field but destined to be consumed at a different region, in this case Latin America. This MOOC is a representative example for several reasons. First, it is a MOOC that arrived just in time, at the very moment when teachers most needed training to cope with the rapid transition to emergency remote teaching derived from the COVID-19 pandemic. Secondly, it is a MOOC that yielded very positive data, both in terms of number of registered participants (2340) and certificates issued (17.4%), as well as in terms of the quality and usefulness of the contents provided. In fact, the assessment of the quality and usefulness of the contents provided has been very positive in all the six modules of the MOOC, which covered related but complementary topics. Thirdly, this MOOC is an example of an international collaboration between European instructors of multidisciplinary backgrounds who coordinated to offer this course, and Latin American institutions that contributed to promoting this course among their teachers and among other teachers in the region.

It is important to keep in mind that the first run of the MOOC was part of a more ambitious and innovative training program that combined online webinars (prior to the MOOC) and online exploratory workshops (after the MOOC). This training program was adapted from its original conception to the constraints of the COVID-19 pandemic and still could have a meaningful impact on Latin American teachers. Moreover, the MOOC could run for a second edition at the request of Latin American institutions. This second run also served to improve some aspects detected after the first run and takes into account the ten lessons learned identified in this article.

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References

- [1] C. Alario-Hoyos, C. Delgado Kloos, and I. Estévez-Ayres. 3.2 *Training Content adaptation for MOOC*. InnovaT Project. 2020. URL: <https://innovat.education/wp-content/uploads/2020/09/D-3-2-training-content-adaptation-for-mooc.pdf>.
- [2] C. Alario-Hoyos, C. Delgado Kloos, and I. Estévez-Ayres. 3.4 *MOOC Pilot*. InnovaT Project. 2020. URL: <https://innovat.education/wp-content/uploads/2020/09/3-4-mooc-piloto.pdf>.
- [3] C. Alario-Hoyos, C. Delgado Kloos, and I. Estévez-Ayres. 3.5 *Results & lessons learned report*. InnovaT Project. 2020. URL: <https://innovat.education/wp-content/uploads/2020/09/D3-5-results-and-lessons-learned-report.pdf>.
- [4] F. Ferri, P. Grifoni, and T. Guzzo. “Online learning and emergency remote teaching: Opportunities and challenges in emergency situations”. In: *Societies* 10.4 (2020). DOI: 10.3390/soc10040086.
- [5] *InnovaT MOOC 2020*. URL: <https://innovat.education/mooc-2020/>.
- [6] *InnovaT MOOC 2022*. URL: <https://innovat.education/mooc/>.
- [7] D. Kloos, C. Alario-Hoyos, M. Morales, H. R. Rocaél, Ó. Jerez, M. Pérez-Sanagustín, et al. In: *Prof-XXI: Teaching and learning centers to support the 21st Century professor*. 2021 World Engineering Education Forum/Global Engineering Deans Council (WEEF/GEDC). IEEE, 2021, pages 447–454. DOI: 10.1109/weef/gedc53299.2021.9657301.

- [8] M. Núñez-Canal, M. d. de Obesso, and C. Pérez-Rivero. "New challenges in higher education: A study of the digital competence of educators in Covid Times". In: *Technological Forecasting and Social Change* 174 (2022). DOI: 10.1016/j.techfore.2021.121270.
- [9] M. Nurunnabi and N. Almusharraf. "Social distancing and reopening universities after the COVID-19 pandemic: Policy complexity in G20 countries". In: *Journal of Public Health Research* 9.s1 (2021), pages 50–59. DOI: 10.4081/jphr.2020.1957.
- [10] L. Pasqualin, L. Terzieva, C. Alario-Hoyos, C. Delgado Kloos, R. Ticona, and M. A. Maldonado. "COVID-19 and teacher continuing education: how InnovaT project has supported innovative higher education teaching in Chile and Peru". In: *Proceedings of the Dortmund International Research Conference 2021*. Dortmund University, Dortmund, Germany. 2021, pages 191–199.
- [11] Y. Punie and C. Redecker. *European framework for the digital competence of educators: DigCompEdu (No. JRC107466)*. Joint Research Centre (European Commission), EUR 28775 EN, Publications Office of the European Union, Luxembourg, 2017. DOI: 10.2760/159770.
- [12] L. M. Romero-Rodríguez, M. S. Ramírez-Montoya, and I. Aguaded. "Determining factors in MOOCs completion rates: Application test in energy sustainability courses". In: *Sustainability* 12.7 (2020), pages 2893, 1–11. DOI: 10.3390/su12072893.
- [13] M. J. Sá and S. Serpa. "COVID-19 and the Promotion of Digital Competences in Education". In: *Universal Journal of Educational Research* 8.10 (2020), pages 4520–4528. DOI: 10.13189/ujer.2020.081020.
- [14] M. R. Salazar Farfán and G. S. Lescano López. "Competencias digitales en docentes universitarios de América Latina: Una revisión sistemática (Digital skills in university teachers in Latin America: A systematic review)". In: *Alpha Centauri* 3.2 (2022), pages 2–13. DOI: 10.47422/ac.v3i2.69.
- [15] UNESCO ICT Competency Framework for Teachers, Version 3. 2018. URL: <https://unesdoc.unesco.org/ark:/48223/pf0000265721>.
- [16] C. Whittle, S. Tiwari, S. Yan, and J. Williams. "Emergency remote teaching environment: A conceptual framework for responsive online teaching in crises". In: *Information and Learning Sciences* 121.5/6 (2020), pages 311–319. DOI: 10.1108/ils-04-2020-0099.