

Organizational Areas for Improvement When Realizing MOOCs At Universities

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Abstract. This policy paper addresses organizational areas for improvement when universities start producing MOOCs. These areas surface in the intersection between educational practice and MOOC policies, and they will be discussed in three parts in the paper. First, we describe the organizational context in which this paper is based. Second, we outline four organizational challenges that can shape the conditions for developing MOOCs at universities. Third, we suggest strategies to shape educational policies and solve organizational challenges. As MOOC developers, our intention with this paper is to describe how receptive universities are when adopting and implementing MOOCs.

Keywords: MOOC, Educational Management, Strategy, Digital Competence.

1 Introduction

Since 2013, the largest university in Norway, the Norwegian University of Science and Technology (NTNU) has invested resources in strengthening the quality of teaching and learning. NTNU Teaching Excellence,¹ is a strategic initiative initiated by the top-management to lift the standard of NTNU's teaching practices to an international level. The 30 projects that have so far resulted from the initiative, differ in size and scope and are funded over a period of one, three or four years. Some projects were bottom-up initiated, where educators applied and received funding as part of an internal selection process. Other projects were top-down initiated and participation was by invitation only. The initiative also tried to meet student demands, since NTNU had been criticized for being too lecture-centric and creating disengaged students in previous student evaluations. Also, the intention behind NTNU Teaching Excellence was to explore creative and innovative teaching and learning in higher education.

Contrary to digital trends in education, NTNU Teaching Excellence reflected a low interest in new technologies and digitalized education among university educators at NTNU. NTNU Teaching Excellence funded only two or three educational projects that aimed exploring MOOC pedagogics. For example, these MOOC initiatives were fueled

¹ See: <https://www.ntnu.edu/teaching-excellence>.

by a handful of enthusiastic university educators, who share a passion for new technologies and digital services. They are early adopters or innovators of technology and learning. MOOCs at NTNU were grass root driven and bottom-up directed.

Their work has so far resulted in a limited number of MOOCs that reflect two pedagogical approaches. On the one hand, university educators develop their digital competences when they jointly produce MOOC courses for *internal use* in their own subject area to solve challenges in the educational culture. The collaborative learning process consists of experimental self-learning, collective reflection and action research. The aim is to improve teaching and learning in the short term, and to change educational cultures in the long run. Many university educators seem to lack knowledge about new technologies and how to produce MOOCs [1, 2]. At NTNU's teacher education one created a MOOC to deal with the mentioned purpose, and that also aimed at enhancing the professional digital competence of teacher educators, which so far have been completed by some twenty teacher educators.

On the other hand, MOOCs are also offered as part of courses in *further education* at NTNU and are offered as *external courses* to anyone who wish to enhance their competences. These MOOCs, however, are made from scratch or converted into an online course from an existing campus course. Here, course participants can obtain a certificate of participation upon completion of the MOOC, or they can gain study credits when passing a final exam upon payment of a tuition fee. An example of the latter, is the Smart learning MOOC,² which is a joint educational venture between the Department of Sociology and Political Science and the Department for Teacher Education, funded by NTNU Teaching Excellence and the Norwegian Agency for Digital Learning in Higher Education. The Smart learning MOOC aimed to develop participants' digital knowledge, skills and attitude and is based on the text book Smart L ring by Arne Krokan [3]. Since 2014, the Smart learning MOOC runs twice a year and takes eight weeks to complete. The MOOC course offers a diploma on completion or a final exam with official study credits from NTNU, also against a disbursement of a tuition fee. Smart learning targets teachers in the Norwegian K-12 system, who wish to strengthen their digital competences and develop a personal learning network, but participants have registered from all areas of working life. So far, some 2000 persons have enrolled in the MOOC, which is based on social and connectivist learning theories.

Seen from a course developer's perspective, making a MOOC is not a straight forward journey. One will inevitably encounter organizational challenges. Hence, the intention with this paper is to address four organizational areas of improvement, which can ease the realization and production of MOOCs at university. These organizational areas of improvement are based on experiences that we have accumulated since 2013 as MOOC developers.

2 Areas for Organizational Improvement

2.1 Area 1: Putting A MOOC Strategy on The Agenda

We find that the first area for improvement relates to the strategic and organizational level and the need to develop a holistic institutional MOOC strategy. The holistic

² See: <https://www.ntnu.no/smartl ring/>.

MOOC strategy can stand alone in the organization or be embedded in a more coherent strategy for digitalization in higher education. For example, we suggest that universities can outline an institutional “MOOC roadmap” and allocate technological and human resources accordingly to safeguard the quality and the production of MOOCs.

In contrast, we observe that working with MOOCs is made difficult by other contemporary and competing educational initiatives, and by the way budgets and people are tied up. Moreover, universities invest significantly in technological infrastructure, new Learning Management Systems and related technologies, but these investments are not automatically accompanied by digital competence development and courses to develop new pedagogical practices among staff. As for MOOCs, we find little indication that top-down incentives have been invested in MOOC technologies and research on MOOCs. Instead, MOOC initiatives are grass root orientated, centered around the initiative and motivation of a handful of university educators. University educators rely on marginal local resources and are often dependent on external funding to realize their ideas. Additionally, external funding agencies, mainly the Norwegian Agency for Digital Learning in Higher Education, have limited resources to support the work of such innovative pedagogies. Consequently, proposals on potential MOOC courses are not easily accepted by funding agencies.

We therefore find it contradictory to good practice that universities and university colleges do not invest in relevant IT infrastructure and pedagogical uses of these and other new digital technologies, including MOOCs. Similarly, there should also be more emphasis on research on digital teaching and learning to inform future strategies and funding in higher education.

2.2 Area 2: Aligning the Organization to MOOC Production

We suggest that the second area for improvement relates to the organization’s supportive role and how the necessities and logics of MOOC production are scaffolded. The organization needs to simplify and facilitate the production process of MOOCs, in other words, to create routines. Here, we consider two interrelated fields.

Firstly, we suggest that universities and funding agencies revise practices on economic governance on proposals intended to realize MOOCs, as strict and bureaucratic control of project budgets can limit creativity and innovation in making of MOOCs. For example, when applying for funding of potential MOOCs, internal and external funding agencies demand detailed criteria for economic spending. As MOOC developers, we experienced that criteria for economic spending challenge the notion of educational innovation. Establishing a framework that is more focused on ensuring that funding is spent according to original plan, than opening for researchers to explore new possibilities offered by digital technologies, impedes educational development.

Secondly, we observe that it is challenging to provide an accurate and up to date overview of running costs in MOOC projects, as well as in the management of MOOC courses, when employees from several departments are involved. An observed organizational pattern is that running costs are divided across different organizational levels. For example, instead of having a single economic record of a MOOC’s project located at one department, different departments or faculties create their own economic records with different bookkeeping practices. This makes it challenging to have a coherent overview of the costs spent in MOOC projects. Moreover, we suggest that internal

communication across these organizational levels and barriers be an area for improvement. If internal communication is improved, this can reduce the amount of project reporting, which is both time consuming and troublesome.

Therefore, we believe that universities, as an organizational entity, should consider aligning to modes of organization that foster decentralized and networked environments. We believe that a vibrant strategy for MOOCs in higher education should involve participants with complementary competences across institutes and faculties. The traditional border between teaching and research in higher education must also be crossed. The strategy should adapt the idea of a network, rather than siloes. The funding of MOOC projects should be more based on trust and flexibility than budget control.

2.3 Area 3: A Need for a Separate MOOC Infrastructure

The third area for organizational improvement relates to technological infrastructure and “a national infrastructure for MOOC production”. As course developers, our experience is that universities should be better at offering adequate support and service to realize MOOCs. Another question is to what extent one should develop a national framework for a separate MOOC infrastructure and allocate human resources accordingly, as we suggested earlier in the paper.

We propose this area for improvement for several reasons. The Learning Management Systems in use do not cater for MOOCs. The LMS used at Norwegian universities are designed as a kind of information depository, without technological features that stimulate online social learning. Therefore, we do not find a user interface that we would expect from a MOOC course and embedded features commonly seen in the social media landscape, like the possibility to like, follow, separate group functions, RSS-feeds, etc. Thus, in cases where universities or university colleges wish to run MOOCs, developers have had to find proper platforms and sign contracts, with all the legal challenges entailed. Some Norwegian universities focus on creating international MOOCs in English on the MOOC platform FutureLearn. As for Norwegian language MOOC production, two options are possible. One can ask the IT department to download and install open software, like Canvas or Open Edx and run a course there, or one can register with BIBSYS³, a state owned company running the national library infrastructure, and pay the cost. The former demands large resources and is more expensive than renting or hosting space from an external MOOC platform provider like BIBSYS.

2.4 Area 4: Addressing Legal Matters

The fourth area for organizational improvement addresses the relationships between MOOC pedagogies and legal matters, an area that we have experienced as extremely challenging for university educators. We argue that MOOC pedagogies and new technologies open up for new practices that are not covered in current legal frameworks and interpretations. In some cases, the MOOC pedagogies uncover the need for the development of new practices. As course developers, one of our most important tasks has been to check the legal aspects of all technological and pedagogical initiatives, but we entered a territory where there is great uncertainty and legal disagreement about a range of matters, like for example whether the Data Protection Agreements is necessary when

³ See: <http://www.bibsys.no/organizacion/> BIBSYS has become the national host for most Norwegian MOOCs, offering a combination of Canvas and Open Edx platforms.

signing an agreement with a MOOC provider. We will also provide two other examples to illustrate our point:

- (1) Who has the legal right to issue a course diploma with a university logo, when students are not enrolled as students, but attend a free course with no exams and no final grade? Normally, MOOC providers issue and sell course diplomas to MOOC participants, but when this option does not apply, how willing is the university to establish a new practice? Krokan [4] claims that there is no agreement on how to deal with the matter at hand.
- (2) Who legalizes the piloting of new forms of summative assessment in MOOCs? A MOOC developer wished to use peer assessment where students grade each other's exam papers [4]. The argument for peer-assessment was that it is a learning process and that students should acquire insights in learning objectives and assessment criteria, and experience other participants' points of view in addition to the course providers'. Such pilot initiatives were rejected by legal advisers, who argued that to pilot the assessment form, the course developers had to apply to the ministry of educational authority, which is a long process that goes beyond the time frame of a project.

3 Policy options applied

3.1 A Program for Digitalization Of Education – NTNU DRIVE

Then, what policies can improve the organizational challenges that we just outlined? In 2013, NTNU chose not to develop a coherent strategy for the digitalization of education and learning, but to fund educational projects that could contribute to creative and innovative teaching and learning in higher education. In 2016, NTNU's top-management saw that these educational projects needed top-down coordination and funded a five-year program, NTNU DRIVE, to anchor the digital fruits of the 30 projects across campuses and simultaneously to make better pedagogical uses of previous investments in technological infrastructure.⁴

NTNU DRIVE is currently in the making. The program is organized as a decentralized and informal network across institutes and faculties. NTNU DRIVE has also been manned by a team of persons consisting of participants with complementary competences. The team consists of experienced educators, researchers, administrative, judicial and technical consultants. Based on experiences made in the digital Smart learning project, we have initiated three activities that will provide educators with a technological infrastructure for MOOCs, that have a budget that leaves room for creativity and provides clarity among educators and that provide legal support in a complex market.

One strategy in NTNU DRIVE is to use MOOC pedagogies to create flexible and varied opportunities for digital competence development among educators and students alike. The NTNU MOOC project is hosted at the Department of Sociology and Political Science and has currently two roles. One is to support university teachers who wish to

⁴ See: <http://www.ntnu.no/drive>.

produce MOOCs, while the other is to produce a variety of MOOCs to be used in systematic, internal competence development. Outcomes and experiences made in the Smart learning project have shaped the aims and objectives in this project.

Another strategy is to keep up with new technological trends and try out new technologies and digital tools. The NTNU BETA project is hosted at the Department of Computer Science and focuses on continuous experimenting, testing and development of new learning technologies and digital learning in a beta phase. There are two roles. One is to support educators who want to install and pilot new educational technologies, and the other is to inform policy makers and suggest new technologies in teaching and learning. Experiences made in the Smart learning project have also paved the way for this technologically based support.

A third strategy is to scaffold digital competence development at group level, to change educational practices in the university institution. The NTNU Internal Competence Development project is hosted at the Department of Teacher Education and offers blended learning and MOOCs to groups of educators and students, who will systematically develop their teaching and learning in courses and programs at faculty and institute level over a period of time.

4 Recommendations

Based on our experience with MOOC production at NTNU, we have the following recommendations, which can be applied by policy makers. To achieve better conditions for MOOC production, one needs to:

- Initiate long-term and holistic educational top-down orientated programs that include broader groups of educators on universities.
- Initiate and create conditions for educational bottom-up projects that leaves room for creativity and innovation and that might result in new ways of solving educational challenges.
- Provide the means to create a reliable national and international MOOC infrastructure to produce MOOCs.
- Create an economic governance system where budget control is transparent and based on trust, which can allow money to be moved between departments at a university level.

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