

Facilitating Interpersonal Exchange on Digital Transformations by Anchoring a MOOC in a Distance-Learning University Course

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Abstract—This full paper in the Innovative Practice Category presents an approach to anchor Massive Open Online Course (MOOC) contents in higher education. We are particularly interested in how a MOOC can be included in a course design that supports critical discourse in a transformative, significant learning framework.

In a regular university course on digital transformations in society, an integration online event was organized halfway through a MOOC phase. The MOOC replaced lectures for 5 weeks, with the event happening in the middle of this phase. The event drew on the flipped classroom concept, but focused more on reflection rather than problem solving. More than 170 students participated in the online event to discuss critical questions based on MOOC topics and their experience while learning with the MOOC. In both cases, participants first discussed in smaller groups of three, before they met in six large groups moderated by researchers. The individual discussion contributions were documented simultaneously in a collaborative online tool by representatives from each group. Additionally, moderators took notes of the discussion processes. In the discussion round on learning, groups shared significant events in learning with the MOOC, aspects that facilitated their learning and areas of improvement regarding the MOOC platform. We further asked students about digital competencies they needed to navigate the MOOC as well as competencies they gained in learning with it.

We evaluated student contributions on learning with the MOOC in a qualitative content analysis. Our evaluation hints at the interpersonal atmosphere in the discussion groups and at didactic caveats. A tentative research gap may be inferred from students' difficulty in exploring significant events: The MOOC enabled self-paced learning, but in itself may not thoroughly facilitate transformative learning and communicative competency. Concerning digital competencies, the majority of student responses refer to technical competency as essential for working with the MOOC. Many student responses point to critical thinking as the primary promoted competency. These responses correspond to the reflective depth of essays students wrote after the MOOC phase. In the final feedback on the online event, students particularly valued the interactive approach taken, the interesting discussions and the mix of didactic methods in the online event.

Index Terms—transformative learning, significant learning, discourse, communicative competency, digitalization, mooc

I. INTRODUCTION

In order to contribute to the future of technologization in a democratic society as “digital reflective practitioners”, university students need learning spaces where they can actively engage in a transdisciplinary discourse on digitalization from different perspectives [1], [2], [3], [4]. In interpersonal discourse, technocratic assumptions can be explored with regards to their validity in a democratic community from participants' vantage points. Discourse here is “a dialogue devoted to assessing reasons presented in support of competing interpretations, by critically examining evidence, arguments, and alternative points of view [5, p. 6].” Social embeddedness, the limitation of progress, hope and the acknowledgement of diversity in human thinking are elementary to such a contextualized critical interpersonal discourse [6].

The course “Digital Transformations”¹ at the University of “Vienna” invites students to develop knowledge about legal, ethical, technical, educational, psychosocial and social aspects of digitalization and to gain digital and Informatics competencies. The course, with approximately up to 200 students from the university in each run, is held as a lecture series. In the first run in 2019/20, 14 speakers from various disciplines offered an interdisciplinary perspective on digital transformation. Content cohesion is achieved through an introductory lecture, a learning platform on Moodle, ongoing reflection and discussion tasks as well as a final examination. In the second run in 2020/21, nine speakers presented, again covering topics from different disciplines. In addition, five units were covered by the massive open online course (MOOC) “Digital Life”², which was created based on didactically prepared recordings from the first run. This MOOC was published on an open platform attracting 640+ participants.

MOOCs are frequently used and investigated in university settings [7], [8], [9], [10]. Since its coining in 2008 [11] the term *MOOC* has been used in diverse settings generating more specific terms such as *cMOOC*, *bMOOC*, *SPOC*, and

¹<https://ecdigitalisierung.univie.ac.at/ringvorlesung/>

²<https://imoox.at/course/digi>

many more [11]. In their two-dimensional model for MOOCs Pilli and Admiraal [12] propose *massiveness* and *openness* as underlying factors for a taxonomy on MOOCs. According to this model the MOOC “Digital Life“ is a *small-scale more-open MOOC*: it is published on the publicly open MOOC-Hub “iMoox“ with no fees and limitless participation. It is advertised on Facebook to target people outside the university. All MOOC contents are immediately available after signup for free. References to academic literature include links to public libraries that hold a publicly accessible copy. Up to now (June 2021), more than 640 people started a learning journey with the MOOC of which 150 students contributed to the evaluation. In the course “Digital Transformations” we look into ways to encourage critical discourse by integrating a MOOC with interactive material. By integrating the MOOC “Digital Life”, we adopt the flipped classroom concept [13]. In this didactical approach, learners study (interactive) material prior to a face-to-face scenario and “deeper learning of concepts [takes place] during the classroom time” [14].

While researchers have studied the flipped/blended/inverted classroom concept ([13], [15], [16], [17]) there are still many different ways of implementing a MOOC in higher education scenarios [18]. Ebner, Schön, and Braun [18] differentiate seven typical MOOC applications. For example they differentiate a *conventional MOOC*, where MOOCs basically resemble a purely online course, from a *lecture MOOC*, which provides lecture contents that are accompanied by learning activities within a university-wide learning management system. In a *blended MOOC* students and lecturer meet at least once before working with the MOOC, while a *flipped MOOC* describes a scenario in which the MOOC only provides contents and students use the lecture for discussion. Our scenario, described in III, we mixed elements from those types.

Face-to-face meetings can be - and in distance-learning need to be - organized as online events. How can the integration of a MOOC in a lecture series effectively support critical discourse in a lecture with more than 150 participants in a distance-learning environment? In this article we aim to find a viable answer to this didactic design question. First, we investigate the context of the course “Digital Transformations” before we describe the organization of an online event to enable interpersonal exchange on MOOC contents anchored in the course framework. We present results of moderated student discussions and summarize students’ overall feedback on the event. Lastly, we discuss implications of our findings for MOOC integration in higher education distance-learning courses.

II. RELATED WORK

Developing communicative competency [3, p. 1160] can be supported in a student- or person-centered learning atmosphere [19], through opportunities for critical reflection and discourse, and by project-oriented learning [4], [20]. Flipped classroom approaches enable critical reflection and discourse, as students engage with the content beforehand [14]. This approach, however, has been criticized for lacking theoretical

framing [16]. Looking for stronger pedagogical theorisation of the flipped classroom practice, [16] extracted four pedagogical dimensions: personalisation, higher-order thinking, self-direction, and collaboration. To account for these dimensions, interactions within the MOOC as well as discussion in presence is necessary [21].

Opportunities for critical discourse can be implemented in diverse ways in MOOC platforms. The iMoox-platform provides an online forum for direct student interaction. Forum discussions, however, can be limiting for critical discourse as some students find the amount of threads overwhelming and discussions about forum-contents outside the MOOC-platform are not accessible for all participants [22].

The comments in online forums can form the basis for evaluating whether or not communicative competency is developing. Analysing the comments collected in a two week study, 55.7% out of 97 learners “experienced some stage of transformative learning” [23] which relates to Mezirow’s Transformative Learning (TL) theory [24]. This is of special interest, when the goal of the lecture, where a MOOC is used as a tool, is to explore technocratic assumptions and critically reflect them by encouraging interdisciplinary discourse.

However, interdisciplinary discourse understood as a discourse of representatives from different disciplines discussing “the same” topic is problematic: in a satirical paper on cross-disciplinary discussions about technology (as “the same” topic) in Human Computer Interaction (HCI), Niess and Wozniak criticize a “field boundary” thinking and propose a 12-step pragmatic manual to “offer therapy for HCI researchers who find themselves in a state of constant epistemological flux” [25]. These steps include the requirement to “establish a discussion structure”. In a MOOC the development of a discussion structure in a forum can be facilitated by an e-moderator but is still problematic [22]. On-campus-settings moderated by teachers and tutors as, for example, described by Almutairi and White [21] are a way to provide for an environment in which MOOC contents as well as student contributions within the MOOC platform can be reflected together.

III. SCENARIO

A. The Course

The course “Digital Transformations” is the opening module of an extension curriculum on digitalization, which started in the winter semester 2019/20 at the University of Vienna. The three modules of the extension curriculum span an arc from transdisciplinary specialist knowledge and critical reflection (module 1) through technical and design application competency (module 2), to subject-specific in-depth knowledge (module 3). After completing the extension curriculum, students can act “digitally sovereign” and actively shape the technological future. It thus opens up a critical transdisciplinary approach to digitalization from different perspectives for students.

The coordinated lecturers and topics of the course span a wide range including technical fundamentals, educational

perspectives, socially relevant perspectives and technical-philosophical topics. Concepts from computer science, such as computational thinking, are related to ethical issues (such as the use of robots), and reflected from economic, social, historical and legal perspectives in the educational sector. A common thread results from the interplay of the topics, which is accentuated by the introductory lecture, cross-references in the lectures and by reflection tasks that cover several units.

For students in teacher training, the course is of particular importance in terms of a basic digital education. Sensitization and raising interest for the wide range of topics of digitalization is a basic condition for the discourse about and the use of technology in various institutions. The scope of digital technologies in the education sector is opened up, and in line with the cross-sectional competencies defined in the curriculum of teacher training, students acquire the ability to be able to constructively and critically assess the effects of technologies and digital media on people and society.

1) *Course Goals and Didactic Principles:* Students who successfully complete this course are able to assess the effects of digital transformation - based on a technical and transdisciplinary basic knowledge of topics such as computational thinking, big data, artificial intelligence, bio-engineering and robotics. Students can position themselves in relation to technology development. They understand the potential effects of digital structures on civil society, privacy, inclusion and democratic processes, and learn to deal with technology critically. They develop a willingness to take responsibility, to search, filter and evaluate data, information and digital content. They become aware of the risks, as well as, the potential of digital environments.

The aim is to teach critical thinking in the context of digital technologies, thereby enabling students to understand and weigh the implications of social media, automation and algorithms from a people-oriented and value-based point of view. The sustainable and wide-ranging digital competencies acquired in this way also counteract the volatility of the otherwise very fast-paced knowledge in this area. The course is specifically geared towards the following learning outcomes:

- Expertise on digitalization from the perspective of various scientific disciplines (O1)
- Sustainable discourse ability on the presented subject areas of digitalization (O2)
- Comprehensive competency to critically reflect on topics in the interplay of different disciplinary perspectives (O3)

The taxonomy of these learning objectives follows the subsequent principles: knowledge and understanding (O1), application and analysis (O2), and synthesis and evaluation (O3). In order to achieve the outlined goals, the course implements the didactic principle of constructive alignment in the design of the content, teaching and learning methods and examination methods. The goals set are translated into examination questions and reflection tasks. The contents of the individual units and the methodical form of the ongoing tasks are based on the definition of these framework conditions.

B. The MOOC

The MOOC content is presented in five lessons using iMoox. The lesson titles are (translated): “Digitalization in the Health Sector”, “Digitalization in Law”, “Roboethics”, “Algorithms and Understanding of Democracy”, and “Participation in the Digital Society”. Technically, the MOOC makes use of interactive videos, a forum, and multiple choice tests. Interactive video elements are chapter annotations and key questions: the video automatically pauses and a question is presented to encourage students to think critically about the content. Each lesson contains discussion suggestions which are intended to encourage students to exchange their positions in the forum. Adhering to the typology of [18], the MOOC is an in-between MOOC. The recommendation was to complete one lesson of the MOOC each week during the first five weeks of the course and before the online event. Before and after the MOOC, a course tutor usually answers technical and grading questions in the chat during course sessions.

C. MOOC integration online event

To provide space for the interpersonal discourse of MOOC contents and to get feedback on the learning experience, we organized an online event with all course participants on 9/11/20, approximately three weeks after students started to learn with the MOOC.

In two hours, six moderators (two lecturers, two researchers and two student tutors) facilitated group discussions on questions in an online collaboration tool (zoom.us). Moderators prepared themselves in a workshop a week before the online event. They discussed the questions that would be presented in the group discussions to align the types of data that would be collected. The questions are based on a current survey of views on MOOC course contents and the feedback interests of course lecturers and researchers. During the online event, a course tutor prepared assignments for the students in breakout rooms within the online platform.

The online event was scheduled as follows:

- 1) To begin, students were asked what contents they had learned within the MOOC so far. Answers were collected on Mentimeter and the results were immediately visible to participants.
- 2) The first discourse round related to MOOC contents was introduced. Leading questions were posted in the chat:
 - *Algorithms* You “surf” the Internet. Can you describe when you pay attention to algorithmic effects and when you don’t?
 - *Objectification through the Internet:* You read a post by a person on the Internet. Can you describe when you have the impression that you would like to have a direct, non-digitally mediated, personal conversation with this person?
 - *Opinion / Position / Discourses:* You come across a quote in a post on the Internet - in the course of a forum post, for example (the source is definitely traceable). Can you describe what you expect in

addition to the quote so that you perceive the contribution as a debatable opinion?

- 3) Students discussed questions for 10 minutes in unmoderated groups of three randomly assigned participants. A group representative had to be selected. In parallel, a course tutor assigned an approximately equal number of small groups to each moderator.
- 4) Back in the plenary, students were asked: "Which competencies for digital transformation are fostered by the MOOC 'Digital Life'?" Answers were collected in a Mentimeter (mentimeter.com) word-cloud.
- 5) Students discussed MOOC contents in a moderated discussion (20 minutes): groups of three were assigned to six moderated groups. Students discussed the three content-related questions. The moderator briefly demonstrated Padlet (padlet.com) and posted the link to the platform in the chat. Approximately six group representatives were supposed to discuss along the key questions. Two of these were asked to document key points of the discussion in a Padlet board shared across all moderated groups. Group moderators facilitated the interpersonal exchange and documented the discourse process. Eventually, the discussion was opened to all participants in the last remaining minutes.
- 6) The second discourse round on the MOOC was introduced. As before, leading questions were posted in the chat:
 - *Significant moments*: What was the most significant moment so far in learning with the MOOC and how would you describe it?
 - *Learning facilitation*: How has learning been simplified and / or made more difficult by the MOOC?
 - *MOOC Design*: Which of the following elements would you keep and expand if you had to leave out 2 of 5 - Explain how and explain your choice: 1) The Reflection Questions in the Videos 2) Videos that are longer than 10 Minutes 3) The Comments of Readings 4) The Forum 5) The Labyrinth 6) Video Game
- 7) Again, unmoderated groups of three randomly assigned students discussed the topics for 10 minutes and group representatives were selected.
- 8) Back in the plenary, a Mentimeter word-cloud was created by student answers to the question: "Which digital skills do I need to do the MOOC 'Digital Life'?"
- 9) Students discussed in moderated groups for 20 minutes.
- 10) Finally, students gave a short feedback (1 – 2 keywords per person) on the online event in the chat.

IV. ONLINE EVENT EVALUATION

Subsequently, we present findings based on student responses at the integrated online event with a focus on how to effectively support critical discourse in an in-between MOOC course scenario. We first show students' general feedback on the event. Next, we list students' feedback on competencies

that are necessary and can be learned in this setting. We compare the feedback with students' actual performance in reflective essays after the MOOC phase. Then, we turn to students' contributions on their experience when learning with the MOOC. Here, we first capture the discussions on personally important moments when learning with the MOOC. We pinpoint supportive and hindering factors when learning with the MOOC and collect suggestions for improvement.

A. Overall Feedback

At the end of the online event, 105 students gave short feedback on the session. Students particularly valued the interactive approach taken in the event (36 mentions). One participant, for example, wrote: “interactive and time passed extremely quickly ;-)” Further, students mentioned that they perceived the discussions in breakout-rooms interesting, that they liked the mix of methods and that they enjoyed the format of the event. One student shared: “Finally seen faces, this is particularly important in times of Covid.” The word-cloud in figure 1 depicts the most frequent keywords of students’ feedback.



Fig. 1. Event Feedback Wordcloud

B. Competencies

Considering competencies necessary to succeed in the MOOC, in 195 responses students frequently mentioned “technical competency”, but also competencies such as “reading” or “self organization”. Figure 2 presents the word-cloud of student responses.

Competencies that can be learned in the MOOC primarily include “critical thinking”, “media competency” and “reflection” in 147 student responses. The word-cloud of student responses is presented in figure 3.

Students' statements in the online event were confirmed when reviewing their essays on a self-selected topic related to MOOC contents at the end of the MOOC phase of the course. The reflective depth of the conclusive synthesis chapter of the essays was evaluated by student tutors following the subsequent guideline (based on [26]):

- 0 No reflection: Only descriptive statements about the content



Fig. 2. Necessary competencies



Fig. 3. Competencies that can be learned

TABLE I
REFLECTIVE DEPTH IN STUDENT ESSAYS

Reflective depth level	Count
R0	10 (2 persons didn't have a conclusive synthesis chapter)
R1	22
R2	36
R3	42

- 1 Reflective description: Statements in terms of content and attempts to justify them - no alternative reasons, limited analysis, no change of perspective
- 2 Dialogical reflection: Relationships between different contents are explored, change of perspective, different attempts at justification
- 3 Transformative reflection: Fundamental questions are raised, personal assumptions are challenged, the intention to change personal practice and understanding, extensive social and ethical implications are taken into account, "big picture view"

Results of reflective depth of 110 essays handed in for evaluation are presented in table I.

C. Learning with a MOOC

To find out about students' experience when learning with the MOOC, contributions in the shared Padlet workspace from the second moderated group discussion were iteratively categorized and clustered. In total, 103 contributions were

TABLE II
SIGNIFICANT MOOC CONTENTS

Content	Count	Anchor Example
General Presentation of the MOOC (Reflection Questions, Videos, Links to Literature, Interactive Course Format)	7	"Quality, no specific moment, but discovering effort and quality was important"
Algorithmic Influence	6	"Use of algorithms: - analysis - Determination of the future"
(Robot) Ethics	6	"a lot of time has passed - what has remained: Episode on sex robots - own ethics / opinion / decision that is programmed in"
Societal Changes related to digitalization (Systems Theory, Digital Divide)	5	"How blatant the social change is"
Health	2	"thought-provoking - health system"
Criticism concerning the Question	2	"not THE significant moment"

collected in the shared workspace. Students were informed beforehand that the lecture they participate in is evaluated. All contributions were anonymized. No data can be traced to a specific participant. In the following, the results of a summarizing qualitative content analysis [27] are presented. Following Mayrings coding tradition [27], we constructed categories by paraphrasing, generalizing, and abstracting the original data: two researchers first sorted the contributions in the three categories *Significant Events*, *Learning Facilitation* and *MOOC Design*. Then each contribution (as a unit of analysis) was summarized. The contributions relating to *Learning Facilitation* were diverse, so for this analysis we assigned multiple categories to each contribution as can be seen in figure 4 and figure 5. The third author reviewed the process and results. Established categories were compared to moderator notes.

1) *Significant Events*: To find out which moments students considered highly important during their learning experience with the MOOC [28], [29], we analyzed contributions related to the first question discussed in the second moderated discussion group of the online event. Students tended to discuss MOOC contents rather than significant experiences when learning with the MOOC platform.

Table II shows student contribution distributions (28 contributions in total). The unit of analysis in this analysis [30] either revolved around some specific course content or represented a general evaluation of the MOOC.

Comparison to moderator notes: The discussion of *significant moments* show that two group discussions revolved around whether one moment could be specifically named. In another group, a moderator mentioned that only one participant shared a significant event. In two further groups, course contents were named. The other moderators shared no notes

on this question.

2) *Learning Facilitation (what aspects helped and what could be improved)*: 49 contributions related to *Learning facilitation* were analyzed. Many contributions addressed several points on learning support. The vast majority of student contributions either mentioned positive aspects of the MOOC or revealed suggestions for improvement, they were first grouped accordingly. For each group, categories were formed in an iterative manner and contributions were coded subsequently. A summary of resulting codes related to learning facilitation (of 30 contributions) with distributions of mentions is presented in figure 4. Suggestions for improvement (of 19 contributions) are shown in figure 5.

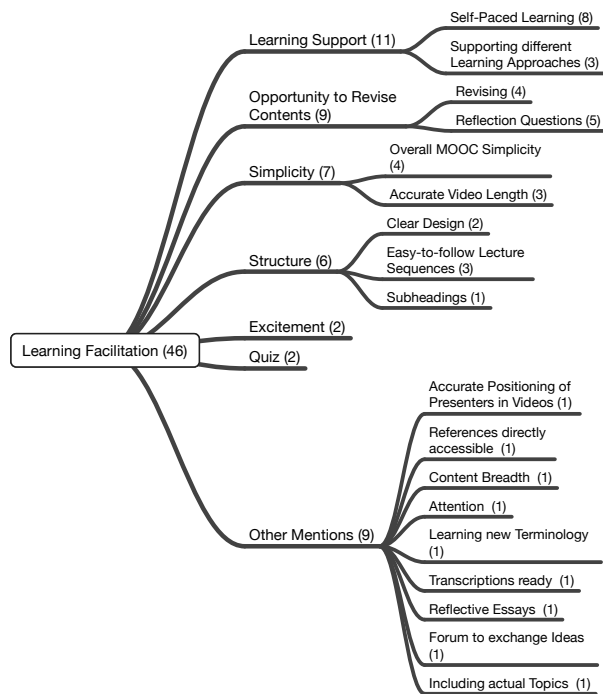


Fig. 4. Learning Facilitation Summary (with number of mentions)

Comparison to moderator notes: It was hard to distinguish between questions on learning facilitation and the MOOC design in the second discussion group (2 moderator mentions). In one group, a student remarked he could concentrate better when learning with a MOOC, while another student said that working with a MOOC is not so different from working with regular lectures. For this student, making contact with colleagues was not much different than in a face-to-face course – as (for this student) it appears to be rather difficult to get in contact in general at University. Four moderators highlight aspects of the MOOC that helped or hindered learning.

3) *MOOC Design*: In the second moderated group discussion 26 student contributions point towards MOOC features that were considered either particularly supportive or rather frustrating. We summarized student contributions in a qual-

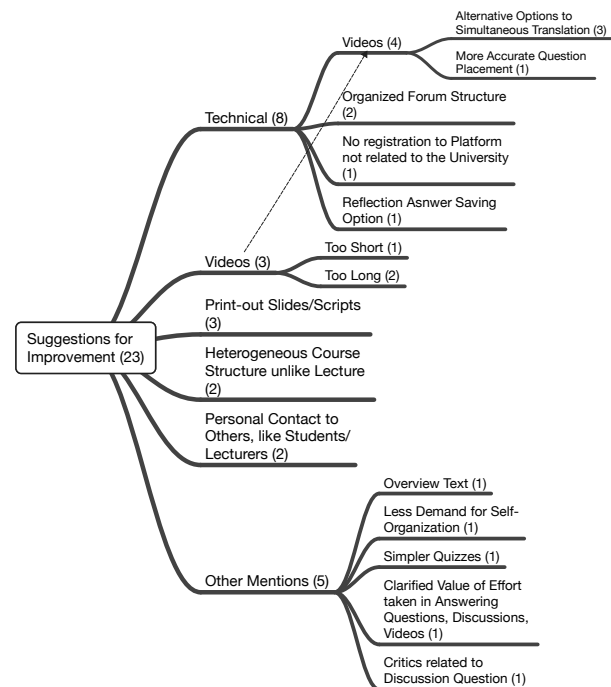


Fig. 5. MOOC Design (with number of mentions)

itative content analysis. Contributions are used as the units of analysis because each contribution relates to one specific MOOC component. Students highlight four key features of the MOOC:

- Forum (10 contributions: 2 positive, 8 negative) was predominantly considered to hinder learning: unorganized, not really supporting exchange, not inviting to engage with others, little content focus.
- Labyrinth game (7 contributions: 1 positive, 6 negative) was hardly recognized by many students. It was valued for its interactivity and fun, but not considered as contributing to knowledge acquisition: a “nice gadget”.
- Videos (5 mentions: 4 positive, 1 negative) appear to have an appropriate length (9 to to 15 minutes) as they were considered ok. Offering transcripts alongside videos was appreciated.
- Reflection questions (5 mentions: all positive) were highly approved of, since they help to start a discourse and to revise.

Comparison to moderator notes: Moderator notes similarly point to the forum and video length as primary discussion points in four groups.

D. Interpersonal discourse process

Moderator notes are explored and summarized with a focus on the communication process within the two moderated discussion groups. Table III summarizes moderators’ notes on

TABLE III
MODERATED GROUP DISCUSSION ON MOOC CONTENTS

Group	Moderator Notes
1	<ul style="list-style-type: none"> • There are no volunteers, I am asked to pick someone. • 2/3 of the participants have deactivated the camera, • Discussion takes a lot of effort to get started, people often say “Well, that depends on the context”: that’s exactly what I wanted. That people worry about the context. But it is perceived by the students as more difficult than profitable.
2	<ul style="list-style-type: none"> • Very orderly - even worked without a display function • There were more individual contributions than a proper discussion. • The students’ answers were very specific and also supplemented with personal opinions and experiences
3	<ul style="list-style-type: none"> • Discussion does not really arise, • Individual contributions that are not very closely linked. • There seems to be a lot of consensus on the issues, it is mutually agreed. Focus: social media • The same students take part over and over again, others remain “invisible” (camera and microphone off),
4	<ul style="list-style-type: none"> • More presenting of individual opinions than a group discussion • It was completely different in the final phase, when everyone could discuss • The first question was almost exclusively the input advertising, at the beginning a speaker always presented, waited for my ok and only then did the next person speak, this then became more fluid.
5	<ul style="list-style-type: none"> • Students were very hesitant, • 3 people gave the most input, • 2 people who were not group speakers took part, • Everyone except for the moderator had deactivated their camera
6	<ul style="list-style-type: none"> • Speaker roles and protocol roles quickly assigned • Lively participation and many requests to speak • No moments of “embarrassing silence”, no content moderation necessary • No conflicts / polarized discussions • Partly more anecdotal requests to speak • Only a few reports

the first discussion group. Table IV shows key points on the group process in the second moderated group discussion.

Three moderators shared didactic remarks in the first discussion round:

- It would be better if everyone took notes and not just the group speaker (Group 2)
- Questions on my part resulted in real discussions after the presentation of the opinions. (Group 4)
- When everything was said, I introduced the second question and speakers presented their results individually. (Group 4)
- I shared my screen to show the padlet and asked what the students’ opinions were regarding individual entries, and there was a lively and varied discussions. (Group 4)
- I briefly opened the discussion for the whole plenum after a topic block (Group 6)
- Topic blocks each concluded with the question of whether everything was shown in the padlet, mostly only little things were missing (Group 6)
- Time very short overall, got stressed towards the end, 30

TABLE IV
MODERATED GROUP DISCUSSION ON MOOC SETTING

Group	Moderator Notes
1	<ul style="list-style-type: none"> • 4-6 people answer more often, asking other people more often did not help to draw them out of the reserve.
2	<ul style="list-style-type: none"> • Very hesitant reports on this block. The same 3 people always spoke.
3	<ul style="list-style-type: none"> • There is a little more discussion (there are different perceptions and opinions regarding the elements of the MOOC). • At the end, a few people said that they were doing a MOOC for the first time and that it was very positive. • Division of the material is very possible, various elements were positively received overall. • The forum is not addressed, social interaction is not a focus.
4	<ul style="list-style-type: none"> • The problem here was that only one group of the three did not complete the MOOC and another group only discussed the last question. • On the third topic, the speakers agreed that the forum could be left out because it was quite one-sided, in the sense of someone posting a post, but no discussion arose.
5	<ul style="list-style-type: none"> • After asking if they felt comfortable to turn on the camera for discussion, all participants activated their cameras • A lot of interaction (only 3 people didn’t engage in the discussion)
6	<ul style="list-style-type: none"> • A little hesitant / reserved at the beginning in the classification • You can feel an overall very positive reception of the MOOC • Apparently some do all the lessons within a few days • Overall less lively discussion than in part 1 • Still hardly any silence / idling • Also very harmonious & homogeneous discussion • Hardly any criticism of the MOOC

minutes would probably have been necessary to complete the padlet (Group 6)

V. DISCUSSION

The intermediary online event organized in the “Digital Transformations” course implements Niess and Wozniak’s steps of cross-disciplinary discussion on technology by providing unmoderated discussions in randomized small groups and moderation in large group discussions [25], following a structure defined by questions regarding MOOC contents and questions reflecting learning with the MOOC, and further, by documenting key points of the discussion online.

RQ: How can the integration of a MOOC in a lecture series effectively support critical discourse in a lecture with more than 150 participants in a distance-learning environment?

The scheduled online discussion event was considered highly valuable by students in the feedback at the end of the event. Particularly, the interactive format repeating small, then larger discussion groups, allowed for active participation. It appears that the selection of discussion questions was appropriate to students’ discussion interests. This points to the potential of in-between interactive events to foster MOOC contents further developing blended and lecture MOOC applications [18].

In line with findings on digital competencies and MOOC participation [31], [32], students highlight knowledge on dig-

ital technology as prerequisite for course participation, while they perceive critical thinking, reflection and media competency as areas that can be developed within the MOOC and the course.

While it was difficult to find rigorous and reliable data on what specifically facilitates learning for students in blended learning pedagogy supported by a MOOC, Koh's [16] four pedagogical dimensions point in a certain direction. Our data supports the *self-direction dimension* with students reporting learning facilitation being related to self-paced learning and different learning approaches. *Personalisation* should have been supported by a vast content-breadth as well as free choice of assignments at several points in the MOOC. However, no student reported on this as an opportunity for personalisation. As students report on the opportunity to revise contents and simplicity, while relating highly complex topics, the presentation of contents in form of a MOOC seem to support the third dimension: *higher-order thinking*. *Collaboration* and discussion was facilitated by the online event described in this paper.

Concerning the structured discussion of MOOC-contents, most platforms offer forums [15], [22]. Our findings support the results of a study by Lackner, Khalil, and Ebner [22] who found that a forum can be overwhelming as we showed that students did not enjoy engaging in forum discussion and found it hindered learning. With this online event we followed a novel approach to anchor MOOCs in lectures and facilitate structured discussion. This approach was mostly perceived as a positive experience by both students and tutors.

When asking students to name significant moments, they either couldn't make sense of the question (some criticized asking for a specific moment in the first place and in some groups discussing the question was dragging), or mostly referred to MOOC contents they found interesting. Yet, there was no further discussion in the groups as to why specific contents appeared interesting to them. Here a gap could be inferred from the mass learning orientation of the MOOC – it provided the contents for self-paced learning, but appears to not thoroughly facilitate significant, personally meaningful learning, and thus the elaboration of communicative competency.

The moderation of discussion groups was supported through: the outline given by prepared question, turning on the cameras in the discussion session, inviting all group participants to participate in sharing their thoughts after each discussion block, and asking several participants to take notes in the used online platform.

VI. CONCLUSION

The main contributions of our paper can be summarized as follows:

- We highlight that in line with research on diverse MOOC implementations [11], [18], massive and open courses (to thousands of people) can in fact be anchored in regular University courses (with less participants).

- We present an effective approach to anchor a MOOC in a University course setting in an explorative evaluation.
- With regards to significant learning [19], we tentatively inferred a gap in MOOC support of personally meaningful learning related to learners' *Lebenswelt*.
- We further present considerations for moderating discussion groups at MOOC integration events in practice.

Dedicating lecture sessions to facilitate group discussions on MOOC contents is welcomed by students and, more importantly, seems to foster critical discourse and reflection on the presented topics. Fostering critical discourse is also one of the course's core learning goals. With regard to the pandemic, the discussion sessions also fulfilled students' wishes for more interpersonal contact and communication, and thus were regarded as a welcome diversion. Online teaching during the pandemic particularly highlights the disadvantages of long non-interactive lecture styles, and calls for interactive and discourse-oriented formats. It will be interesting to see how the learnings of using these formats transfer to future full presence or hybrid lecture settings. For this particular lecture series we anticipate switching to a full flipped classroom approach. We are currently producing two extensions of the "Digital Life" MOOC discussed in this paper. Thus, all learning contents (with a scope of 5 ECTS) will be available to students to be studied online autonomously. The lecture dates will then be used to anchor these contents, using presentations, and group discussions, and thereby fostering critical discourse.

The results of the study presented here support the assumption that such a format will be both well received by students and successful in feeding into the discourse-oriented learning goals of the lecture series.

We also anticipate three challenges. First, MOOC contents in this particular field can be short-lived. To counter this, we focus on contents that refrain from referencing current events. Still, a constant effort will be needed to maintain, replace and update contents. Second, besides providing knowledge in an easily accessible way, it appears to be relevant to explore how MOOC design may help learners and lecturers to establish connections to their personal "Lebenswelt" and to focus on deepening reflection and understanding beyond knowledge acquisition. Third, interactive lecture events, like the one discussed here, necessitate personnel for organising and moderating the discussions. In contrast to the expectation that an online course might ease the workload for lecturers, in reality preparing, organizing and facilitating interactive lectures and online discourse generates more work. Therefore, such lecture series need to be well supported with resources such as student assistants.

To address these challenges in future work, we will continue to evaluate the anchoring of our MOOCs in university lectures. In order to relate student outcomes to the lecture and MOOC design we build on qualitative and quantitative methods.

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