

COFEEMOOC-V.2: Designing Contingent Feedback for Massive Open Online Courses

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ABSTRACT

Providing adequate support to MOOC participants is often a challenging task due to massiveness of the learners' population and the asynchronous communication among peers and MOOC practitioners. This workshop aims at discussing common learners' problems reported in the literature and reflect on designing adequate feedback interventions with the use of learning data. Our aim is three-fold: a) to pinpoint MOOC aspects that impact the planning of feedback, b) to explore the use of learning data in designing feedback strategies, and c) to propose design guidelines for developing and delivering scaffolding interventions for personalized feedback in MOOCs. To do so, we will carry out hands-on activities that aim to involve participants in interpreting learning data and using them to design adaptive feedback. This workshop appeals to researchers, practitioners and MOOC stakeholders who aim to providing contextualized scaffolding. We envision that this workshop will provide insights for bridging the gap between pedagogical theory and practice when it comes to feedback interventions in MOOCs.

KEYWORDS

MOOCs, Feedback, Learning Analytics, Learners' Problems, Interventions

1. INTRODUCTION

Massive Open Online Courses (MOOCs) are perceived as a form of democratizing education by providing global learning opportunities without geographical and cost constraints (Onah, Sinclair, & Boyatt, 2014). Nevertheless, not all the learners can exploit the learning benefits offered. In MOOC contexts, learners usually face several difficulties related with their learning paths which have been associated with their course retention (Adamopoulos, 2013; Shatnawi, Gaber, & Cocea, 2014; Topali et al., 2019). The massive nature of MOOCs, the learners' heterogeneity (Deboer, Seaton, & Breslow, 2013) and the asynchronous communication among educators and participants, result in belated attention and timely feedback interventions leading often in learners' disengagement and dropout.

Feedback has a high impact on the learning process, shaping considerably the learners-to-tutor and learners-to-learners interaction (Deane & Guasch, 2015). During learning, educators are required to meet students' needs by providing them with the necessary support (Wood & Wood, 1996). In face-to-face learning contexts, educators can follow learners' progress and collect information from various formal and informal sources to understand their students' needs for assistance (van de Pol, Volman, & Beishuizen, 2010). Yet, in MOOCs, this direct interaction may be hard to monitor or altogether absent due to massive number of participants. Also, the use of technology introduces additional factors - such as technology failures, need for structured communication and coordination between teachers, learners and peers - that can affect the way we provide feedback.

Designing feedback for MOOCs cannot be addressed as in human-to-human tutoring due to the aforementioned aspects. At the same time, designing scaffolding following intelligent tutoring systems approaches is not appropriate since human factors (such as the role of the teacher and the peers) are important aspects of MOOCs. So far, research focuses on Learning Analytics to identify the students who may need

assistant and to assess what kind of feedback is appropriate for their needs. However, empirical research suggests that the Learning Analytics methods used to provide feedback are not based on established pedagogical strategies for instruction (Gašević, Dawson, & Siemens, 2015) and it may hinder learning instead of supporting it (Chounta, 2019).

2. WORKSHOP OBJECTIVE

The current workshop provides a venue to explore, discuss and reflect on the design of feedback interventions in MOOCs following a participatory approach. To design appropriate feedback in MOOCs, we identify three critical points that we will further elaborate during the workshop:

- a. To pinpoint the context-specific aspects that come into play regarding scaffolding in MOOCs and to investigate their impact on designing feedback;
- b. To explore the role of learning analytics in delivering feedback. For example, how can we employ learning analytics to identify struggling learners in need of scaffolding or to design personalized feedback;
- c. To develop guidelines for designing scaffolding and delivering contextualized feedback in MOOCs.

Through real-life scenarios, we will address the aforementioned points and we will demonstrate how to provide personalized interventions designed for massive contexts. In particular, we plan to apply various computational algorithms and visualizations on existing data and attempt to interpret findings based on established educational theories.

2.1. WORKSHOP RELEVANCE WITH EMOOCS21

This workshop is aligned with the themes of the Experience Track, and with the Research and Policy Tracks directions. More specifically, CoFeeMOOC-v.2 serves as an opportunity for discussion and reflection on the recurrent problems that may appear during the design and the enactment of MOOCs in terms of providing feedback to learners experiencing difficulties. This goal is in alliance with the second and fourth focus of the Experience Track, that is, the incorporation of the pedagogy and LA in MOOC learning designs, respectively. Through hypothetical situations where MOOC learners need help, workshop participants will discuss on how to cope with these problematic situations. We envision that this hands-on approach will deliver insights regarding the design and implementation feedback strategies, the appropriate support mechanisms for different situations and the conceptual or technological tools that could facilitate scaffolding. This workshop aims to contribute to bridging the gap between pedagogical theory and practice when it comes to feedback interventions in MOOCs and to inspiring future research lines.

At the same time, this workshop is in accordance with the current policy needs which ask for new applications of MOOCs for different learning contexts (e.g., K-12, lifelong learning). Recently, MOOCs received a lot of attention due to Covid-19 pandemic, with 2020 to be considered as the “second year of MOOCs” (Shah, 2020). The pandemic has posed radical challenges in worldwide education shifting learning from the traditional in-person teaching to online settings. Under such circumstances, MOOCs gained a lot of attention as a lifelong learning opportunity for individuals (Rindlisbacher, 2020), also as a solution for remote learning addressing K12 and university sectors (Ma & Rindlisbacher, 2020). The high interest that MOOC received require reconsideration of several teaching practices and among them a better design on the delivery of feedback interventions, an aspect that we attempt to address during this workshop.

2.2. WORKSHOP OUTCOMES

Including both concrete outputs from the workshops, as well as research outcomes, this workshop will help:

- the participants to discuss and reflect:
 - on the limitations of the current feedback practices to learners who face problems during the course run-time
 - on how to design and decide more adequate support for the learner population
- the researchers:

- to gain insights to collect a set of support practices (per presented scenario) in MOOC contexts.

The researchers will be gain access to the insights and outcomes of the workshop for further synthesizing a set of guidelines for MOOC practitioners with the aim to facilitate instructors in the design of feedback interventions for their courses. The produced materials and knowledge will be documented and distributed in the form of a report to the participants and potentially an academic publication that will summarize the outcomes of the workshop.

3. WHO IS THIS WORKSHOP FOR?

This workshop targets interested in MOOCs (either in designing, delivering or receiving courses) and in feedback provision strategies for massive contexts. We identify as a target audience the following:

- Researchers with an interest educational data mining, LA, online and massive learning, MOOCs;
- MOOC practitioners delivering and designing courses;
- MOOC learners.

We envision that this workshop will be beneficial for all the stakeholders involved in the design and delivery of MOOCs. First, COFEEMOOC-V.2 can offer to the researchers the opportunity to study different ways of interpreting learners' trace data contextualized under the course learning design in order to design tools (technological or conceptual) for feedback interventions. At the same time, MOOC practitioners will have the opportunity to reflect on further aspects that they should consider in order to provide adequate support to their learner population and enrich their actual practices. Finally, MOOC learners can provide their insights to practitioners and researchers regarding the interventions strategies they consider as most appropriate based on their needs.

The expected number of participants is from 5-40 persons approximately. In order to attract the desirable number of participants, we plan to promote CoFeeMOOC-v.2 to communities of practice and people interested in MOOCs. Precisely, we will launch a website including all the details and updates of our workshop and we will use it to communicate and disseminate this work (the website that supported the previous instance of this workshop can be found here: <https://sites.google.com/view/cofeemooc2020/>). Additionally, we will use social media to announce CoFeeMOOC-v.2 and we will promote it to relevant online communities (i.e., MOOC instructors, researchers on the topic etc) and research societies (such as, the International Society of the Learning Sciences, ISLS and the Society for Learning Analytics Research, SoLAR). Finally, we will invite researchers of our networks to attend the event.

4. PREVIOUS EVENTS

The current workshop is the second workshop edition we conduct on the topic of feedback intervention strategies with focus on MOOC contexts. The first edition was presented in the 15th European Conference on Technology Enhanced Learning (ECTEL2020). The first workshop focused on the metrics that can alert MOOC practitioners about problematic learner behaviours. The workshop outcomes regarded insights about the importance of course learning design and its contextualization with learners' trace data to inform feedback interventions.

This round of CoFeeMOOC will apply the ideas gathered previously to explore different feedback practices considered as more adequate for various learners' problems reported in MOOCs. As added value of these two rounds will be the production of a set of good practices in terms of feedback interventions addressing specific MOOC problems reported in the literature.

Additionally, we have carried out two previous workshop series regarding personalized feedback in online higher education:

- Nordic Learning Analytics Summer Institute (LASI Nordic) 2019, Workshop Title: "Using Learning Analytics to Design Appropriate, Student-Centered Feedback", (<https://lasi2019.tlu.ee/program/workshops/>, https://colaps.ut.ee/?page_id=130)

- Eapril 2019, Workshop Title: “Using Learning Analytics to Design Personalized and Adaptive Feedback for Higher Education”, (https://eapril.org/sites/default/files/2019-11/EAPRIL2019%20Programme_v13.pdf, https://colaps.ut.ee/?page_id=131)

Furthermore, the proposed workshop builds on prior work presented in the ECTEL 2019 poster session regarding the identification of parameters that could facilitate the detection of struggling learners during the course run-time. The study received the Best Poster Award of the conference (<http://ectel2019.httc.de/index.php?id=918>).

5. WORKSHOP FORMAT

The workshop will run divided in the following parts. Explicit information about the timing of each part can be found in Figure 1. The workshop is expected to last 3 hours.

1. **Self-introduction:** Participants will introduce themselves briefly.
2. **Presentation-MOOCs & Feedback Provision Practices:** Organizers will briefly present related work to MOOCs and feedback provision practices usually applied.
3. **Workshop Purpose & Layout:** Workshop purpose and Layout will be stated.
4. **Hands-on Activity-Design of Feedback Intervention:** We will follow up with a hands-on activity. During this activity, participants will be split into groups (approximately from 3 to 8 participants per group depending on the total number of the assistants). Each group will be presented a different scenario regarding learners’ problems. For these scenarios, we will ask the groups to work together to design appropriate feedback interventions.
5. **Break Time!**
6. **Presentation of Participants’ Input:** Each group will present their interventions and rationale to the rest of the participants. We will carry out a focus group discussion to elaborate on the pros and cons of each intervention and its applicability in situ.
7. **Open Discussion & Reflections:** We will discuss the “lessons learnt”.

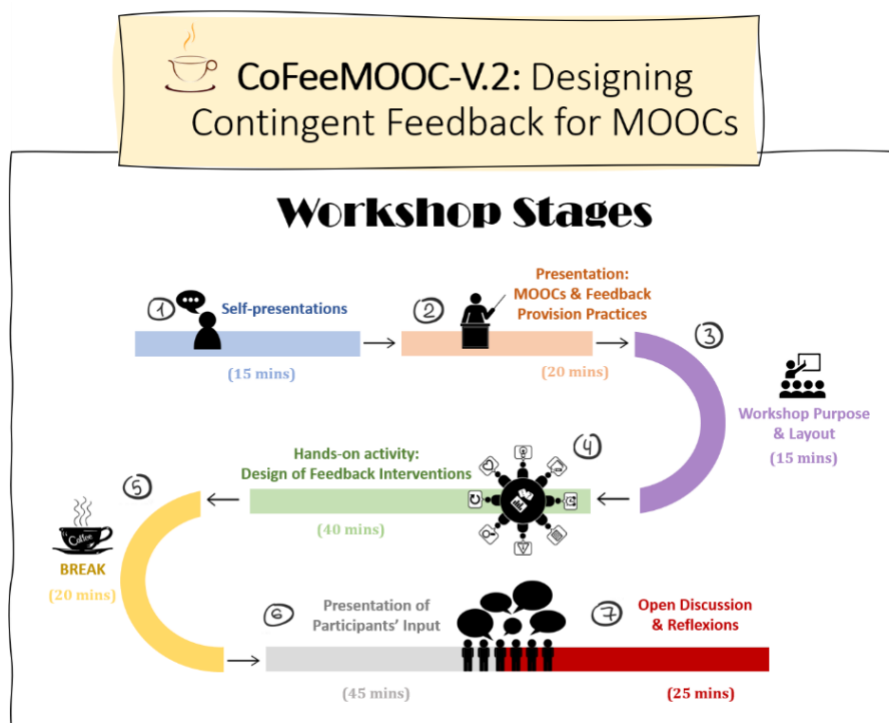


Fig.1 Workshop Structure

We plan to run the workshop purely online. To facilitate the workshop, we will use an online conference system (to be decided after discussion with the conference organizers and the workshops chairs) - including additional video recordings for the participants' talks. We explore the possibility of using virtual breakout rooms for enabling the group discussions and the assignment of facilitators for each breakout room to orchestrate the activities. Additionally, we will use online tools, such as shared workspaces for the collaborative creation of concept maps and argument diagrams and online polls, to document participants' opinions, to support groups' activity.

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