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Fostering Engagement in MOOCs: Leveraging a Community of Practice for Discussion Forum Moderators

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***Abstract*—Discussion Forums (DF) of MOOCs have the potential to enhance learning experiences. These online social spaces, crucial for knowledge sharing and collaborative learning, can foster active participation and meaningful engagement among learners. This can be achieved by incorporating Learner Experience Interactions and orchestration dynamics, as prescribed in the Learner-Centric MOOC (LCM) Model. Community participation is an interesting and important feature, which can enhance DF engagement; however, it is not explored adequately. This ethnographic study explores the experiences and perspectives of a virtual Community of Practice (CoP) among Discussion Forum Moderators (DFMs). We investigate the strategies and practices employed by DFMs to enhance engagement in MOOC DF using participant observation and interviews. The results suggest that involvement in such a CoP positively impacts the DFMs' sense of belonging and identity, peer recognition and validation. These findings contribute to a deeper understanding of creating a CoP of DFMs to support learner engagement in MOOC DFs and offer practical insights for MOOC instructors, and learners. By implementing the identified strategies and considering the contextual factors influencing engagement, MOOC providers can create an interactive and inclusive learning environment through orchestration dynamics that foster active participation and knowledge exchange in DFs.**

Keywords— Discussion Forum Moderators, Ethnography, Learner-centric pedagogy, MOOC design, Community of Practice, Engagement

I. INTRODUCTION

Massive Open Online Courses (MOOCs) have revolutionized the landscape of online education, providing learners with access to high-quality educational resources and the opportunity to engage with a global community of learners. Within MOOCs, Discussion Forums (DFs) play a vital role in fostering learner interaction, knowledge sharing, and collaboration. However, despite their potential, MOOC DFs often struggle to foster active participation and meaningful engagement among learners. Meaningful interaction in the DF helps improve learner engagement and performance [1] among others.

Several models have been created to address issues and promote engagement in DFs. One of the components of the Learner-Centric MOOC (LCM) Model is the creation of Learner Experience Interactions (LxI) to optimize the usage of and engagement in the Discussion Forums [2], [3]. This is a prescriptive model having constructors to assist course developers. In addition to designing Focus Questions and Reflection quizzes, DF moderation during course orchestration helps in enhancing engagement [4] and leads to sustained engagement [3]. However, there are gaps in existing research on community efforts in enhancing DF enriched with LCM elements. Thus, this paper aims to study the application of principles of the LCM Model in the DF along with the impact of the Community of Practice (CoP) of Discussion Forums Moderators (DFMs) on engagement in the DF. It explores the dynamics of the DFMs among themselves as well as strategies employed by them on the DF in order to measure their impact on interactions with the learners.

II. RELATED WORK

To contextualize the present study within the existing research this section delves into the meaning, purpose, function of DFs, the ways to increase learner engagement, and the role of CoPs.

A. Discussion Forum: Concept and its importance in MOOCs

A DF is a virtual space beyond the confines of geography and temporality that supports asynchronous interactions [5], [6]. These online forums are considered to be social learning spaces that encourage diversity, facilitate peer learning, and collaborations as well as create communities of like-minded individuals [7]. Participants can connect with one another, share experiences, and build a collective understanding of the subject matter [8]. Learner participation in the DF positively impacts performance and course completion [1], [9], [10]. Considering the immense potential that DFs have in learning, several MOOC platforms incorporate this feature and MOOC creation guidelines prescribe its utilization [2], [11]. However, it is often observed that DFs in online courses are under-utilized [12].

B. Discussion Forum Engagement: Markers and Measures

Engagement of the DF is indicated not only by the number of posts but also by markers like the nature of the posts among others [13], [14]. Four interlinked dimensions have been identified that influence engagement among learners: behavioral, cognitive, affective and social [15]. Lower cognitive engagement in the DF negatively impacts performance [16].

Learners feel more engaged in a structured DF than in an unstructured one [17]. Thus, in order to increase engagement

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in DF, the LCM Model prescribes the LxI component. This includes structuring the DF around focus questions (FQs) based on the course content and incentivizing participation by introducing a reflection quiz based on interactions on the DF [2].

C. Discussion Forum Moderation: Role and Functions

The DFs of MOOCs need to be managed by competent personnel, and moderated as per the requirement [2]. However, since it is not mandatory or a full-time task, there are instances where DFs are moderated by peers, instructors, moderators, even by alumni or sometimes left unmoderated [4], [14]. Moderators require a set of technical, online communication skills as well as expertise in the subject and usage of online systems [18]. DFMs have 4 important functions or roles: organizational or (managerial), social, pedagogical, and technical [19], [20]. Most of the moderators require training to acquire these skill sets [21]. The moderators typically monitor posts, study learner activity logs, provide feedback, facilitate conversations, and create a conducive ambience within the forum [22].

Many times, moderation is a volunteer task, however, most of the moderators agree to this, based on the academic credit they receive. Additionally, reciprocity (mutual exchange), personal gain, collectivism, and altruism (selfless act of assisting others) feature among the factors that motivate people to contribute to online forums [23], [24]. There are other cases, where individuals refrain from becoming moderators due to lack of time [24]. To summarize, although DF moderation is required and is a valid structural element of a MOOC, there is limited documentation on the collaborative strategies that the course team and moderators can use to effectively orchestrate a large number of diverse participants of a course.

D. Community of Practice

CoP is essentially a group of "people who engage in a process of collective learning in a shared domain of human endeavor" [25]. CoPs enable the transition of knowledge from personal and tacit to explicit and collective and that this knowledge is also diffused through CoPs [19]. The benefits of CoP include the transfer of best practices and the development of professional skills among others [26]. A virtual forum dedicated to the use of the CoP of a MOOC created a sense of belonging [27]. The study also finds that CoPs can enable its participants to innovate by being an enabler of motivation. An analysis of a CoP among Teachers identifies that the underlying tensions between various stakeholders of the CoP positively impact it and influence community dynamics [28]. A CoP of teachers who were participants of the previous versions of the LCM MOOC course, facilitated the implementation of the LCM model in online courses as well as contributed to the evolution of the tenets [29]. They also state that implementation of the LCM model through CoPs amplifies its intended outcomes.

III. Research Study

This article contributes to the existing literature by highlighting the impact of dynamics within a CoP of DFMs on interactions with the learners in the DF. The paper is derived from a 4-month ethnographic study of an orchestration of a DF in a MOOC.

A. Problem Statement

Meaningful interactions in the DF are an integral part of LxI in any Learner-Centric MOOC. Several courses enlist the assistance of DFMs to moderate discussions and encourage engagement within DFs. However, very little is known about the rationale that influences potential candidates' decision to become DFMs, the role that the CoP has in supporting DFMs and the influence on engagement in the DF.

B. Research Questions

Broad Research Questions (RQ) is an ethnographic study of the processes and interventions followed by the moderators to enhance engagement in the DF of MOOCs. Broad RQ: How does CoP among DFMs foster engagement in a MOOC?

This is split into multiple RQs as follows:

- RQ1: What factors do DFMs consider before taking up the responsibility?
- RQ2: What is the perception of DFMs about the onboarding activity?
- RQ3: What steps are taken by the DFMs on a daily basis to engage learners in the DF?
- RQ4: To what extent does involvement in a CoP have an impact on DFMs' motivation to participate in the DF?
- RQ5: What are the markers DFMs use to measure the increase in engagement in the DF?

C. Methods

This qualitative study uses an ethnographic approach [30] where patterns of behavior within the CoP are observed. The participant-observation approach was considered to be most appropriate for this study which attempts to understand the culture of the CoP. The researchers were part of the course orchestration team and hence were immersed in the day-to-day happenings on the DF and were privy to the interactions between DFMs. In addition, cumulatively they have had several years of experience in the domain.

D. Background of the Study

In order to assist in the orchestration of the Learner-centric MOOC titled *Designing Learner-Centric MOOCs* offered on the Indian MOOC platform -SWAYAM from January to March 2023, alumni of the previous batch who were toppers of the course were invited via email to volunteer as DFMs. This call to volunteer as DFMs was sent via email a few weeks before the commencement of the course. The email included a brief overview of the responsibilities, weekly time commitment and recognition that potential candidates would gain to validate their contributions as DFMs. While 9 alumni initially expressed their interest in becoming DFMs, 7 took up the responsibility. In addition, alumni of previous batches were invited to volunteer as Direct Points of Contact (DPOCs) for the DFMs.

Training sessions as recommended for skill-building [21], [31] were conducted online for the DFMs and subsequently, they were added to a social media group for further coordination. While the examinations of the course ended in March, the orchestration team regularly attended the DF till the declaration of results in April 2023.

E. Selection of Participants for the Study

While various stakeholders involved in the orchestration of the MOOC were observed and interviewed, namely DFMs, Direct Point of Contact for DFMs, and learners of the MOOC, the study lays emphasis on the process and interventions by 7 DFMs (male=5, female=2). Using convenience sampling, an alumnus of the course who initially volunteered for the role of being DFMs but later backed out was also interviewed. In addition, 4 participants (male =2, female =2), were also interviewed.

F. Data Collection

Informed consent was sought at the beginning of the study before the collection of data [30]. A variety of data sources were collated and analyzed as mentioned in Table 1.

TABLE I. RESEARCH QUESTIONS AND DATA SOURCES

Research Questions	Corresponding Data Sources
RQ1	Interviews
RQ2	Interviews, Pre-course correspondence and resources.
RQ3	Interviews, Observation logs, Data from forums and other correspondences. Orchestration documents
RQ4	Interviews, Observation logs
RQ5	Interviews, Observation logs, Orchestration documents

- Pre-course correspondence and resources: Emails and responses sent before the commencement of the course to recruit DFMs, and resources used during the orientation session.
- Observation logs: Observations were undertaken by the participant observers, who were part of the course orchestration team from before the commencement of the course till the declaration of results. This served as a means to note various actions taken by the DPOCs who conducted the orientation session and DFMs on a regular basis to engage with participants as well as reactions by participants to the actions taken by the DFMs. Observations included the dynamics of various forums and groups.
- Data from forums and other correspondences: Social media group for DFMs, Daily Group call by DFMs, DF of the course platform, social media group created by DFMs for selected participants. This was done to study the role of CoP.
- Orchestration documents: This includes daily tracker as well as reports submitted by the DFMs in various formats.

Online interviews: All online interviews were conducted after the completion of the course. The questions for the interviews were designed and validated by a group of experts. Some questions that were part of the DFM interview protocol were as follows: What motivated you to take up the role of DFM? What are the qualities expected in a DFM? On your day as the moderator, what does your typical workflow look like? What are the indicators of an Active DF? When starting a discussion thread on the DF, what strategies did you use? Did you reach out to the DFM social media group? Why? How did the members of the COP react to your input? What effect did that reaction have on your motivation levels?

Interviews were recorded, transcribed and manually coded first individually by the researchers and then compared. After discussion, a consensus was reached. Transcripts were anonymized and coded from M1 to M7 to represent the moderators who responded.

G. Data Analysis

A thematic analysis of the transcripts of interviews and observation notes was undertaken to identify pertinent codes [32]. Codes are labels that are given to specific elements in the transcript and observation notes from which themes emerge [32].

IV. RESULTS AND ANALYSIS

We present the results associated with each of the 5 RQs in the following 5 sub-sections (A-E). Each subsection contains themes that emerge from the data.

A. RQ1

Before taking up the role of DFM, candidates considered a range of factors. Identifying and understanding these factors would provide insights into their motivations.

1) Theme 1- Knowledge and Skill Development: All DFMs (n=7) indicated that they volunteered in order to deepen their understanding of the course content, and functioning of DFs which would, in turn, help them put LCM theory in practice (M2). As the MOOC was on the creation of learner-centric online courses, some were curious to know the behind-the-scenes orchestration. Considering that all the DFMs in the course were former toppers of the course, they were confident in their ability to contribute to discussions, provide accurate information, and guide participants effectively. Most of the DFMs indicated that having good communication and interpersonal skills was an important factor in their role. These crucial skills are essential for guiding discussions and encouraging active participation. This includes the ability to answer queries in a concise manner and at the same time elicit responses from others through follow-up questions. An essential quality of a DFM is the willingness to assist and engage with others in a friendly, non-confrontational manner. On the DF, they would need to effectively engage with participants, resolve conflicts as well as foster a respectful and inclusive environment. Some DFMs indicated that they joined the team as they wanted to transpose the experience gained to their own course.

[…] wanted to develop e-content or consult in the development of e-content (M3).
[…] this experience would help me position my courses (M6).

On analyzing their answer to this question, we noted that most of their gains were focused on self-improvement. DFMs considered the potential for professional growth and development that comes with the role. They see it as an opportunity to enhance their leadership skills, gain experience in online facilitation, and interact and network with like-minded individuals.

I wanted to learn how this iteration of the course works and […] implement the strategies learnt in my teaching (M1).
[…] find out how the DF worked, considering the fact that almost 1000 learners had enrolled (M4).
[…] learn different leadership styles (M6).

2) Theme 2- Altruism: Most of the DFMs indicated that they volunteered as they wanted to give back to the course as Alumni.

I thought let me contribute so that the learners can get a good experience (M7).

Those who volunteer as DFMs are often passionate about the subject or topic being discussed within the DF. Personal interest motivates them to share knowledge and sustain meaningful conversations. Considering the required time commitment, and their intrinsic motivation, they displayed a willingness to dedicate sufficient time to monitor discussions, respond to participant queries, and maintain an active presence within the DF. An alumnus who was unable to join as DFM stated time constraints as a factor that impeded participation.

3) Theme 3- Networking: This opportunity to be a DFM would also enable them to network with the course instructors, other DFMs and participants of the course. Apart from the email initiation, they also received a personal call from the course instructor which many indicated was memorable thus indicating the (former) learner-instructor connection as a factor in their decision to join as DFMs. Thus, DFMs also considered the potential of their role to network within the educational community.

B. RQ2

All DFMs indicated that the orientation sessions conducted were very useful. The nuanced perception of DFMs about the onboarding activity can vary based on their individual experiences and the effectiveness of the onboarding process. However, the common perceptions that DFMs have are indicated in the following themes.

1) Theme 1- Support and Communication: DFMs appreciated the orientation session as it provided clear instructions and guidance on their role and responsibilities. In addition to this value, emphasis was laid on discussing the forum's purpose and their mission as DFMs.

It provided an overview of the process (M5).

During the onboarding process, a Day of Duty was assigned to the 7 DFMs on a rotational basis as per their stated preference. This was done to ensure quick response time. DFMs were assigned a Direct Point of Contact or mentor, who was their first touch point for any assistance. Having clear and multiple communication channels as well as a support structure helped them ease into their role. However, some indicated that the onboarding activity could include more pre-course prep sessions with the DFM team so as to build bonds and brainstorm. Frequently, on various communication channels team members reflected on and evaluated the activity on the DF and their role. These mechanisms for feedback and evaluation contribute to ongoing enhancements in the onboarding experience for future DFMs.

Have an icebreaker for DFMs before the start of the course. (M2)

Let DFMs come up with strategies for engagement well before the start of the course (M4).

[…] prep[aration] work among DFMs can be started 6 months before the beginning of the course (M2).

2) Theme 2- Skill Development: The onboarding session was perceived as a means to develop and hone skills for effective DF orchestration. These skills included: moderation skills, communication techniques, conflict resolution strategies, and effective DF management. With sufficient and need based training, DFMs gain confidence in their ability to perform their role.

It provided strategies and tools to start a discussion even if the forum is quiet (M2)

3) Theme 3- Community Building: The orientation session helped them connect with other DFMs and build a sense of community. Collaborative activities that were part of the orientation encourage networking and knowledge sharing among the team. This creates a favorable environment for community building. DFMs appreciated having a DPOC and a common social media group with the orchestration team to address their questions, provide guidance, and offer support throughout their journey.

[The DPOCs] gave us a direction on how to perform. […] It was reassuring to have a team behind to support us (M1).

C. RQ3

DFMs take several steps on a daily basis to engage learners in the DF.

1) Monitoring: On their day of duty, almost all of the DFMs indicated that the first stage of their typical workflow included visiting the forum to check posts (of the earlier day/same day) in their free slots. The time of visit varied from person to person since all of them were working in different institutions. The variable time slots were mutually adjusted, and the DFM peers got accustomed to the slots and managed their responses accordingly. For example, read these comments by some of the DFMs about their time slot choices:

I was comfortable working late nights so I would receive feedback from the team the next day (M1).

I used to keep waiting till 11.30 pm if any additional posts come (M4).

2) Consulting: Second stage was to go through the handover message sent by the DFM of the previous day and the course content to formulate the response. Many of the DFMs also mentioned that they used to visit the internal chat group and discuss with peers.

Check the handover message from the previous day to see what needs to be done and inform the DFM group that it is my turn (M2).

When a DFM was not able to contribute on a particular day, we observed that they reached out to their fellow DFMs for assistance on the group chat

3) Posting on the DF: It was observed that in order to encourage learner participation, DFMs actively initiated and facilitated discussions on relevant topics. They posted thought-provoking questions, shared relevant resources, and/or introduced discussion prompts to stimulate engagement and encourage learners to share their thoughts and opinions. They also ensured timely responses to learners' queries, comments, and contributions, providing guidance, feedback, and encouragement to maintain an active and responsive learning community. While posting on the DF, they employed the following strategies:

- Creating a positive and productive learning environment: Through deliberate use of personalized posts and tonality, DFMs maintained a conducive learning environment. They also intervened when necessary to redirect discussions, encourage participation, or resolve conflicts. DFMs play a crucial role in establishing a safe and inclusive environment where learners feel comfortable expressing their opinions and sharing their thoughts. They enforce community guidelines, promote respectful and constructive dialogue, and address any instances of inappropriate behavior or conflicts that may arise.
- Using personalized prompts: To engage learners, DFMs posted follow-up questions based on their posts. These prompts were meant to seek learners' perspective, experience or further information and examples to support their comments. This guidance helped learners develop critical thinking skills and enhance their understanding of the subject matter.
- Encouraging peer interaction: DFMs facilitated peer interactions either through subtle prompts or explicitly introducing learners having common interests. Apart from providing learners with a platform to share their perspective and lived experience in a structured manner, DFMs encouraged peer review and collaborations. By engaging with peers' posts, learners displayed a sense of community.

4) Handover: This involved preparing a short handover report to the team and DFM of the next day. At the end of the day of duty, DFMs either had a short call, chat or post with details of their experience on the DF. This handover communication also included queries that they were unable to answer and any interesting posts that they read. Majority of DFMs preferred the creative aspect of their role such as working on the audio report as a group or individually. It is clear that the Moderation Procedures like the tracking sheet, the handover message and the daily report serve as ways for the DFMs to record their activities, stay organized and also be mindful of their replies. The handover component of the day also presents a space for the DFMs to regularly reflect on their own moderation practices, assess the effectiveness of their engagement strategies and sought feedback from learners and fellow moderators. They used this feedback and self-reflection to continuously improve their approach and enhance learner engagement in the DF.

I always felt fulfilled at the end of the day (M4)
I like to work in an organized manner, the tracking sheet and the reporting, I found it interesting (M1).

D. RQ4

To a large extent, DFMs indicated that involvement in a CoP had a positive impact on their participation. The CoP was described as *friendly, reassuring, healthy* (M1) with a *professional* (M3), *open and non-judgmental atmosphere* (M2, M3).

[The] group is the backbone of the DFM (M2).
My opinions were taken positively […] I received personal validation for MOOC creation experience (M6).

Here are four ways in which CoP involvement influences DFMs' motivation.

1) Theme 1- Support in Overcoming Challenges: The challenges faced by the DFMs were broadly of two types: Forum related and Personal. Forum-related challenges include lower levels of participation. Personal challenges include time management and access to internet tools. It is notable that for both these challenges, DFMs relied on the CoP for resolution in more ways than one. When participation levels were low, DFMs brainstormed post ideas or collaborated to form mini-action groups among participants that focused on practicing the LCM principles. When a unique query was asked on the forum, they brainstormed answers among themselves before answering it on the DF. As for personal problems, when DFMs were unable to assume duties for the day they reached out to their DFM peers. All DFMs indicated that they frequently got in touch with and were contacted by their DPOCs and Course Instructors. The role of the DPOCs and Course Instructor was to provide support to the DFMs. They would check-in from time to time to provide motivation, constructive feedback, guidance on posting responses and appreciate reply posts by DFMs. In addition, this CoP included feedback mechanisms from their peers. This constructive feedback has several benefits that range from improving moderation skills to understanding learners' requirements and deploying engagement strategies. The CoP provided a conducive atmosphere for DFMs to be heard, be supported and get validation, thus motivating them to participate and perform on the DF

2) Theme 2- Sense of Belonging and Identity: In order to facilitate communication and coordination for orchestration, a social media group was set up by the course team. All DFMs indicated that asynchronous discussion on social media platforms was used for group, daily update meetings along with one-on-one calls with the team.The CoP being a group of like-minded individuals with shared interests in promoting learning, a mutual sense of belonging was felt by respondents. They say that this sense of common identity within the CoP motivated them to contribute more.

[…] being asked to be DFM was a form of recognition (M4).

A sense of commitment to the purpose of the CoP and camaraderie was observed as DFMs pitched in for each other to answer queries on the forum and in the creation of creative reports of the happenings on the DF. Apart from fielding queries on the DF, DFMs volunteered to take on more responsibilities like attending and moderating chat of the live interactions and responding to queries, and collaboratively designing quizzes based on the DF. In addition, they also created a social media group for participants of the course indicating initiative and further involvement in the community.

[…] there was a need to create a poll and I went out of my way to experiment with embedding polls etc. I was creative after a long time (M1).

Respondents said that the CoP gave them the motivation to do newer. More creative tasks that they otherwise would not have the opportunity to do. This was amplified further by

the realization that their actions make a difference in the dynamics seen in the DF.

3) Theme 3- Peer Recognition and Validation: The social media group provided an avenue for the team to post updates, get clarification and suggestions on posting, and provide their opinions on aspects of orchestration.

Never thought it was needed but I did it to validate the answer. I saw other DFMs also did this. It was nice (M7).

[...] in the group there is the space to say I have made a mistake or I am learning and people will help (M2).

[…] the group is always there to brainstorm…- enable one on one connections (M4).

Within the CoP, the DFMs felt they would get valid answers while asking questions and felt safe enough to seek solutions to the issues they might be facing in the moderation process. They also are able to admit any mistakes that may have been made, with the assurance that they will not be judged but help will be given to rectify the mistake. This definitely made the CoP a space of mutual respect and open communication which are both essential factors in the process of knowledge transfer.

4) Theme 4- Learning and Professional Development Opportunities: To many DFMs, professional development through resource sharing, initiation of collaboration and knowledge enhancement were by products of belonging to this CoP. This led to renewed participation in the DF and implementation of newly learned skills and techniques to support learner engagement. The secondary benefit of this, is that it further motivated them to handhold other DFMs if and when the need arose.

[…] when I mentored some other DFMs in report creation, I was surprised to see that their work was done even though at times I could not be present for the meeting due to personal issues. (M2).

E. RQ5

DFMs identified markers and measures to identify and improve engagement.

1) Theme 1- Markers of DF Engagement: The DFMs who had the experience of being participants in a previous offering of the course mentioned 4 markers for an Active DF. They used a combination of these markers to measure the increase in engagement in the DF.

- Quantity of posts: The volume of posts on a forum on a particular day and more specifically the number of replies to a discussion prompt
- Quality of posts: The quality of posts, not merely the length but also the nature of query/comment are also essential indicators.
- Diversity of participants posting: The number of learners posting as well as having learners consistently communicating through posts either as a reply to the weekly FQs, or answering follow-up questions and queries.
- Number of Learner-to-Learner discussions in addition to Learner-DFM interactions.

2) Theme 2- Measures of DF Engagement: Various measures were put into place to ensure that the markers were met. They include the following

- Explicitly stating expectations to participants of the course so that participants are aware of the benefits of posting on the DF.
- Designing discussion points like weekly FQ and additional FQs to engage the learners. While FQs and RQs are a core component of the LCM model, some DFMs suggested the increase in the number of questions to elicit responses from the participants.
  During the initial time in the course, we should add more FQs or Polls or activities (M7).
  Include questions that cater to the imagination, personal experience and individual perspective. So learners can write based on their perspective instead of giving some generic answers (M6).
- Utilizing conversation strategies when starting a discussion thread include addressing the participants by their names and maintaining a friendly yet serious tone to the posts.
- Acknowledging good posts by participants. DFMs used different means to value the participant's experience or words such as a compliment or acknowledgement of the participants' posts. A majority stated that incentivization of participation on DF and other communication channels like DF of the Live interactions by acknowledging good posts. This was done in order to involve them further in the conversation.
  […] identify and incentivize those who are normally active on the DF (M4)
  All learners interviewed, indicated that they appreciated the personalized feedback.
- Posing conceptual and probing questions to help learners deepen their understanding or posing follow-up questions to further the conversation. *Don't give the answer directly, instead lead the learner to the answer and let them discover it. Asking a question back to the learner on how a certain element can be applied in his or her domain (R2). Frame the answer in a probing way eliciting further interaction (M3)*
- Cross-posting where participants were directed to existing posts.
- At times, consciously not responding to select posts to let the participants discuss.
  […] sometimes not interfering with peer interaction can help (M4).

In addition, after interacting with participants in various smaller groups, the insights gained point towards bridging the linguistic gap by providing learners in a multilingual context the possibility to use their language of choice, to communicate in the DF.

V. DISCUSSION

Our study reveals that factors like knowledge and skill, networking, and altruism motivate candidates to volunteer as DFMs. By taking these factors into account, DFMs make an informed decision about their readiness to assume the responsibility of moderating the DF. Our findings are in line with prior studies which confirm that factors like knowledge

self-efficacy, personal gain, collectivism, and a variant of altruism among others are key drivers in knowledge-sharing online CoPs [23], [24].

The onboarding orientation activity conducted before the start of the course received positive reviews from DFMs who gained three kinds of benefits: Orchestration-focused gains, Skill-focused gains, and Community-focused gains.

With sufficient orientation and training, DFMs feel confident in their capacity to effectively perform their roles. This essential onboarding process helps acknowledge and address DFMs perceptions, expectations and specific requirements ensuring a positive boost to their experience. The training of e-moderators equips them with the required skill sets which in turn is reflected in DF interactions [21].

On a daily basis, DFMs undertook 4 steps: Monitoring, Consulting, Interventions on DF and Handover. While posting they employed a range of strategies. By employing these strategies, DFMs can create a dynamic and interactive learning environment within the DF, fostering active participation, knowledge sharing, and collaborative learning among learners. These strategies are similar to those used by instructors-led DFs [22].

Being an integral part of a CoP gives DFMs not only a sense of belonging and recognition, but also provides safe spaces for learning, feedback and collaboration. This in turn fuels motivation to actively engage with learners in the DF and foster engagement among the participants, creating a ripple effect conducive to community building.

According to the DFMs, the 4 markers for an Active DF are quantity of posts, quality of posts, diversity of participants posting and peer-to-peer discussions. This is in line with prior studies [13], [14] which have also identified other markers that need to be taken into account. The measures put into place to ensure that the markers were met are: explicitly stating expectations to participants of the course, designing discussion points and utilization of conversation strategies.

A. Limitations of the study

In addition to the qualitative observations, quantitative data from more DFMs would have strengthened our findings. However, this orchestration strategy to deploy DFMs limits the sample size. Further, it was difficult not only to find other courses deploying this strategy but to also gain permission to access them. Considering that online interviews with DFMs were conducted after the course ended, limitations of interview methods like memory reconstruction could affect the data.

VI. CONCLUSION

The findings of this ethnographic study concludes that CoP provides support, suggestions, and validation to DFMs. Thus, interaction among DFMs multiplied as evidenced by the increase in number of individual/collaborative tasks. This demonstrates that an inclusive and non-judgmental community encourages DFMs to participate more. As a result, an increase in participant engagement on the DF is observed.

The study recommends the following strategies related to DFMs and DF moderation useful for MOOC designers: (a) selection of DFMs who are alumni of the course, (b) incorporation of orientation sessions prior to the course, (c) training on moderation specific technical features of the platform, (d) operationalization of DF specific communication strategies, (e) inculcation of community building ethos. These strategies are replicable and could be implemented in other courses to ensure higher completion rates.

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