

Instructor's Role in Distance Mode of Blended Learning: Investigating Interaction, Instructor Perceptions and Challenges in Using Moodle

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Abstract

In pursuing increased access to higher education through Open, Distance and e-Learning (ODEL), and in the attempt to improve learner retention, the instructor role remains an area of interest. Therefore, this study sought to assess the instructor practices in blended learning, in distance mode. It also aimed to investigate the challenges that they faced in the context of use of Moodle for establishing interaction. The study investigated two course modules offered in ODeL at a public University in Malawi, which utilized Moodle. Data was collected through semi-structured interview from instructors who were purposively selected (instructors = 3); and was generated from Moodle log for learners who were selected using stratified proportionate random sampling (n = 90). The analysis involved making inferences based on the average Moodle access time of learners' in relation to ways that the instructors facilitated interactions. Findings of Moodle log established high frequencies in assignment submit (M = 8.74, SD = 4.17), feedback view (M = 2.71, SD = 2.10), and the least in forum view (M = 0.08, SD = 0.31). Similarly, instructors' perceptions showed that they facilitated interaction by giving assignments and feedback and uploading content, while discussions were not attempted. Reported challenges were technological, operational, and pedagogical. The study revealed inadequate online facilitation by the instructors. Additionally the study supported the significance of instructor in distance mode in promoting interaction and knowledge building. Implications for the study were suggestions to stakeholders to address the barriers by putting in place clear guidelines for instructor's role, provision of resources and ongoing professional development.

Keywords

Blended learning, Moodle, Interaction, Instructor Role, Open, Distance and e-Learning

1. Introduction

Even though in the distance mode of blended learning, the learner is largely perceived as an independent learner, it appears that the instructor remains relevant in facilitating learning, maintaining learner engagement and motivation (Kumari, 2023). While the instructor is important in facilitating learning in all modes of education, it seems clear in traditional classroom, but generally less recognized and complex in the non-traditional, online, distance teaching situations (Parker, 2020; Lim, Kim, Cho, & Lim, 2021). Bilgiç and Tuzun (2020) observed compromised success of learners due to lack of recognition of the role of the instructor in Open, Distance and e-Learning (ODEL). That is when instructors were unable to conform to the needs of distance education as different from those of conventional mode, including preparing content in various formats, providing interactive activities, giving authentic assessments and possessing required ICT skills (Bilgiç & Tuzun, 2020).

According to Parker (2020), the instructor takes up extra roles and strategies to help learners in knowledge building. Whereas, learner autonomy for active participation in their learning through a constructivist approach is expected (Moore, 1977). The constructs of interaction, consisting of learner-content interaction, learner-instructor interaction, learner-learner interaction and learner-system interaction also influence learning in distance education (Mensah, Mensah, Gyapong, & Taley, 2021). Yet for this to manifest, the instructor plays a key role in establishing the interactions (Markova, Glazkova, & Zaborova, 2017).

This study investigated the instructor's role in ODeL at the Lilongwe University of Agriculture and Natural Resources (LUANAR), which is one of the fastest growing national universities in Malawi. LUANAR was chosen for the study because it is one of the universities that faces high dropout rates, especially in ODeL since its establishment in 2016. In 2019, the attrition rate was at 51%, which is substantial and a cause for concern (LUANAR, 2020). The ODeL programme provided capacity building for instructors and utilized Moodle Learning Management System (LMS) to support distance delivery mode, including providing self-learning materials in the form of modules and management of formative e-assessments (Nyirongo & Sanga, 2018). Besides these conditions, it is unclear whether instructors' practices help learners to persist in distance mode. Concerns were raised if they adequately facilitated learning and ongoing support in the distance mode to contribute to learner satisfaction and persistence.

The purpose of the study was to assess the instructor practices in offering ongoing support in blended learning, in distance mode. It also aimed to investigate

the challenges that instructors faced in the context of use of Moodle for establishing interactions. The following research questions guided the study:

- 1) In what ways do instructors facilitate interaction in distance mode of blended learning?
- 2) What challenges do instructors face in facilitating the distance mode?

2. Literature Review

2.1. Blended Learning

Blended learning has become an effective mode for distance education delivery (Jowsey, Foster, Cooper-Ioelu, & Jacobs, 2020). It pertains to a pedagogical approach that integrates face-to-face teaching and distance mode mediated by technology (Koi-Akrofi, Owusu-Oware, & Tanye, 2020). It balances the benefits of face-to-face sessions and convenience of the online distance mode (McKenna, Gupta, Kaiser, Lopes, & Zarestky, 2020; Muhuro & Kang'ethe, 2021). The mediating technology through LMS have influenced the distance education (Baragash & Al-Samarraie, 2018). The "distance" component implies the separation of learners, instructors and resources in time and space (Bozkurt, 2019). This is in agreement with Moore's transaction distance theory. Moore (2013) postulates that a psychological and communication space is created because of the physical separation that requires instructors to reduce the gap for potential misunderstanding by learners and instructor.

Consequently, e-Learning is significant in mediating the distance mode. According to Allen and Seaman (2016), e-Learning involves the delivery of content and instruction fully online, or in blended mode with a combination of limited face-to-face, and between 30% - 79% online. Kisanga (2016) regarded e-Learning as the integration of technology to support teaching, learning and various types of interactions in a virtual environment or in standalone operating environments. Baragash and Al-Samarraie (2018), contended that the LMS is an all-encompassing technology to meet most learning needs in e-learning, including hosting text or multimedia learning resources, the integration of synchronous and asynchronous tools such as virtual classroom, email and discussion forum that drive interaction. There are many LMS applications available, either proprietary or open source. Simanullang and Rajagukguk (2020) indicated that Moodle is one of the most deployed, open source LMS globally.

Hannon and Macken (2014) proposed three models of blended learning approaches: i) Model 1 which uses the concept of flipped classroom, addressing classroom activities in face-to-face sessions and e-Learning to tackle learning resources. ii) Model 2 with short intensive face-to-face sessions and longer e-learning sessions for online content and resources. iii) Model 3 with largely online sessions with lectures and resources for a short time duration while offering opportunities for tutorials and either online or face-to-face interactions. According to Nkomo (2021), blended learning implementation is context based. In Malawi, institutions like LUANAR and Mzuzu University implemented the blended model

2 for ODeL programmes (Chawinga & Zozie, 2016; LUANAR, 2017). The design adopted face-to-face sessions at the beginning of the semester for orientation and introduction purposes, followed by continued support in distance mode with opportunities for tutorials in challenging areas and other sessions for revisions in preparation of examinations (NCHE, 2019).

It transpired that many institutions have migrated to dual mode, offering regular traditional campus-based teaching and learning and distance education mode for some programmes (Kanwar, Carr, Ortlieb, & Mohee, 2018). Nationally, there were 7414 enrolments in degree and diploma programs in Malawi's public institutions under the skills development project (Nobuyuki, 2020). By year 2022, statistics for Malawi's Open, Distance and e-Learning (ODeL) enrolment in public universities rose to 5944, at 10% of the 59,771 undergraduate enrolments with more institutions establishing ODeL (MoE, 2022).

2.2. Interaction

Many recent studies have investigated the four types of interaction (learner-content interaction, learner-instructor interaction, learner-learner interaction and learner-system interaction) and their association with various resultant variables, including satisfaction, performance, motivation and other attributes. Studies found that interaction significantly contributes to general course satisfaction (Si, 2022; Muzammil, Sutawijaya, & Harsasi, 2020; Taghizadeh & Hajhosseini, 2021). For example, Taghizadeh and Hajhosseini (2021) found that learners were satisfied with blended learning based on their attitude with blended learning, frequency of learner-instructor interaction and quality of teaching. Other studies identified interaction as a predictor of success (Cagliero, Canale, Farinetti, Baralis, & Venuto, 2021; Song, Rice, & Oh, 2019; Zacharis, 2015). According to Song et al. (2019) learners who spend more time online interacting in activities designed for the course perform better in their final grade than those who spend less time. In contrast, Zacharis (2015) found weak relationship between time spent online and performance. In another study, analyzing the LMS activity log established that downloading materials and viewing video lectures were some of the early predictors of performance (Cagliero et al., 2021).

Studies established that high quality interaction significantly relates with course satisfaction and learner performance (Wang, Hassan, Pynk, Ye, & Aminuddin, 2024; Jaggars & Xu, 2016). Wang et al. (2024) revealed that learners were least satisfied with quality of learner-instructor interaction due to inadequate engagement. Nonetheless, some studies included additional variables such as self-regulated learning, motivation and personal attributes in examining interaction (Li, Krasny, & Russ, 2016; Lin, Zheng, & Zhang, 2017). For instance, a study by Li et al. (2016) found that when learners interacted with content, they felt motivated to learn.

2.3. Role of Instructor in Blended Learning, Distance Mode

It was ascertained that there are varying ways of defining the evolving role of a

distance education instructor. [Martin, Budhrani, Kumar and Ritzhaupt \(2019: p. 18\)](#) identified the instructor as a “course designer, facilitator, or teacher, while at other times the instructor is required to be mentor”. [Martin, Wang, and Sadaf \(2020\)](#), focused on facilitation strategies based on social, pedagogical, technical and administrative roles. In their elaboration, [Hung and Chou \(2015: p. 11\)](#), specified the roles as “course designer and organizer, discussion facilitator, social supporter, technology facilitator, and assessment designer”. Therefore, the instructor is responsible for content development, facilitation, communicating information and providing assessments and feedback.

[Moore \(1989\)](#) indicated that the instructor can be the one who developed the content or another specifically allocated to take the role of a facilitator. According to [Alqurashi \(2019\)](#), the instructor is responsible to ensure that learning materials are available to the learner. The materials range from text, slide presentations, audio, and video formats ([Zacharis, 2015](#)). While [Kumar, Martin, Budhrani and Ritzhaupt \(2019\)](#), suggested the use of existing or self-created multimedia learning resources. According to [Zacharis \(2015\)](#), the learning materials developed for distance learners are packaged in various formats and in convenient ways of access.

[Saykili \(2018\)](#), identified facilitation of learning as supporting learners to take charge of their learning. Such constructivist ideas involve creating an enabling environment for learners to participate actively in knowledge building are widely employed ([Bozkurt, 2019](#)). In a study by [Kuo and Belland \(2016\)](#), facilitation covered use of LMS for incremental distribution of content; providing assignments and topic-based instructor led discussions; and communicating important information through various tools. Other studies emphasized the learner-instructor interaction in forum-based activities that apply real cases and learning outcomes, with opportunities for questioning and feedback ([Rahman, Hussein, & Aluwi, 2015](#); [Çardak & Selvi, 2016](#)). In contrast, a study by [Cho and Tobias \(2016\)](#) established that discussions that are instructor led or not have no effect on learner satisfaction.

It was asserted that assessment and feedback help to clarify misconceptions confirm acquisition of new knowledge, and ways to apply it ([Moore, 1989](#); [Black & William, 1998](#)). Studies emphasized feedback through various media as an aspect of learner-instructor interaction ([Al-Momani & Pilli, 2021](#); [Heidarpoor & Dejagah, 2022](#)). While [Kim \(2017\)](#) reported that, it occurred as personalized comments on essays. [Martin and Bolliger \(2022\)](#) identified that learners highly valued other forms of learner engagement including posting due dates for assignments and activities to help keep them on track.

[Kopus, Mikhalat, Belozeroval and Meshcheryakova \(2021\)](#), suggested that learners valued the social presence establishment by the instructor. [Holmberg \(1988: p. 13\)](#), asserted the importance of factoring in interactions that help to bring a sense of “personal rapport” to make learning more satisfactory. While [Bowers and Kumar \(2015\)](#) suggested that, learners find an online class design with modular course structure, activities, lessons and discussions a higher teaching and social

presence as compared to the face-face mode. It was further established that for courses which the instructor interacted more with learners, it yielded more learner satisfaction and better performance (Taghizadeh & Hajhosseini, 2021; Jaggars & Xu, 2016). Overall, studies showed that learners value the existence of an instructor in distance education, depending on instructor's strategies used.

Hence, as observed from literature, many studies focused on types of interaction in the online setting of blended learning in relation to satisfaction, performance and other characteristics. In regards to specific roles of instructor, studies aimed to identify the general roles through qualitative analysis (Martin et al., 2020; Martin et al., 2019; Hung & Chou, 2015). Others examined instructor's role from the perspective of domains of human development (Heilporn, Lakhal, & B  lisle, 2021). There appears to be limited studies on instructor role focusing on the constructs of interaction taking into account the learners' LMS usage as this study has attempted. However, there are still some studies that emphasized the instructor's role in constructs of interaction in blended learning contexts. Jiang (2024), found that behavioral and situational factors influence and regulate implementation of blended learning. A study by Antwi-Boampong (2020) found intrinsic and extrinsic factors positively and negatively influenced implementation of blended learning, respectively.

2.4. Conceptual and Theoretical Framework

The study was guided by a conceptual and a theoretical framework in identifying instructor's role in distance mode of blended learning. Accordingly, the conceptual model consisting of Moore's three constructs of interaction namely; the learner-content interaction, learner-instructor interaction and learner-learner interaction and learner-system interaction by Hillman, Willis and Gunawardena (1994). On the other hand, the study applied a theory of constructivism, specifically the principles of social cultural theory.

2.4.1. Types of Interaction and Instructor's Approaches in Distance Education

According to Moore (1989), the learner-content interaction is the most important type of interaction, based on the premise that it contains the major elements that the learner engages with in the learning process. Furthermore, Moore (1989, 2013) suggested that content must be designed to teach learners about the subject, to offer associated activities and assessments in the absence of the instructor. In this vein, the model views learner-content interaction based on three dimensions, the content structure, accessibility and relevance. According to Moore (1989), structure defines learning content that supports conversation principles as stipulated in didactic conversation proposed by Holmberg (1983). Accessibility emphasizes ease of accessing and presentation of content (Holmberg, 1983). While relevance considers contents' adherence to structure, dialog and autonomy (Moore, 2013). Moore (1989), asserted that content becomes relevant when it allows cognitive development.

Moore (1989) indicated that the learner-instructor interaction is the second most significant form of interaction. The major instructor roles are counsellor, subject matter expert, facilitator of interactions and course designer (Moore & Thompson, 1997). In addition, Moore (1977) stated that instructors must ensure the availability of learning resources while helping them establish autonomy of their learning. Moore (1989) stipulated that learner-instructor interaction could be established in written or recorded content through which the instructor speaks to the learner to motivate, teach, and provide activities, assessments and feedback. Nevertheless, Moore (1989) indicated that learning is more effective with learner-instructor interaction than when there is just dependence on learner-content interaction that affords just one-way interaction. For example, teleconferencing provides an effective facility for learner-instructor interaction Moore (1989).

The learner-learner interaction has an important place in distance education. According to Moore (1989: p. 4), it is the “inter-learner interaction, between one learner and other learners, alone or in group settings, with or without the real-time presence of an instructor”. This form of interaction is an effective way for collaborative knowledge building. According to Anderson (2003), the learner-learner interaction is acceptable if the collaborative instructional activities assigned are pedagogically sound and motivational.

The learner-system interaction implies how well the learner can use the technologies to support Moore’s three types of interaction. Hillman et al. (1994) highlighted the extra burden placed on learners taking non-technical courses, that they are required to learn to use the technology in addition to their courses. Although Hillman et al. (1994) emphasized the learners’ capacity in technology, it is imperative to consider the proficiency of instructors as well. Based on the model and literature, it is reasonable that the use of the LMS and ICT gadgets represents a sub-concept of learner-system interaction due to the influence on this form of interaction. In addition, the overall ICT infrastructure affects the adoption of learner-system interaction, lack of which may cause frustrations (Saykili, 2018; Weidlich & Bastiaens, 2018).

2.4.2. Constructivism Principles

Constructivism provides an insight on ways that the instructor can support learning. According to Mohammed and Kinyó (2020), constructivism assumes that: construction of knowledge is an active process; every learner has prior knowledge and experience, which affects construction of knowledge; involves linking prior knowledge and experience in a goal-oriented process; and considers collaborative, social construction of knowledge. The implication of these assumptions to instructor of distance education suggests applying strategies that promote construction of knowledge based on learner’s experiences. Rannikmäe, Holbrook and Soobard (2020: p. 3), points out the relevance of instructor as the more knowledgeable one, to facilitate and guide learners to “self-construct” knowledge. This relates to Vygotsky’s zone of proximal development that is reached when there is a gap requiring support from the instructor to reach the potential developmental stage

(Li, 2015). The theory also recognizes the need for the instructor to scaffold learning by organizing self-learning materials, including modules that assist learners to reconstruct their knowledge, organize students' prior experiences to help them learn new things, provide collaborative learning activities, assessments and feedback (Danieli, 2020).

3. Research Methodology

The study employed a mixed method, case study design. A case study provides a comprehensive outlook for a specific and unique setting involving real people, to portray the standard for similar context (Cohen, Manion, & Morrison, 2017). Quantitative data was collected from Moodle log on the types and frequencies of interaction while qualitative data was generated from instructor interview. The study followed the interpretation of the quantitative and qualitative findings into the same section in discussing the connectedness of the findings, following Ivankova and Creswell (2009).

3.1. Study Context and Participants

The study investigated two course modules offered in ODeL, blended learning mode: a) module 1 for year 1 (semester 2) in their first year, taking foundation and basic sciences, b) a year 3 (semester 5) who had advanced into their program of specialization. The learners were mostly secondary school leavers who enrolled in first year, as well as mature entry at second year for those who needed to upgrade their qualifications.

The blended model comprised of two weeks, campus based face-to-face facilitation session at the beginning of the semester, which provided physical contact with instructors and peers, where facilitation for key concepts of the courses including lab sessions were done. The rest of the semester was for independent study at 14 weeks' minimum, where instructors were expected to provide ongoing support, assignments and examinations. We noted that the model used was in line with blended model 2 (Hannon & Macken, 2014). Learners were provided self-study course modules in downloadable and printable format, while the Moodle LMS was used for management of formative assessments and access to course materials. In addition, learners had the opportunity to attend tutorials for areas that they found difficult which were conducted at least three times in a semester by designated tutors, physically at satellite centers in the three geographic regions of the country.

With assistance from the research institution's officer, the researcher identified two course modules that utilized Moodle for formative e-assessment. This was important because there were some classes that were not using Moodle. Hence, the study applied a purposive sampling for the instructor sample and stratified proportionate random sampling for the learner sample. It was significant to obtain data that met the criteria for the study, thus heterogeneous participants from the two course modules, and their respective instructors were selected because: 1)

they utilized Moodle LMS and were likely information rich sources; 2) the selection of the two classes was aimed at achieving a good representation of 8 semesters of study, at beginner level, and mid-way to completion.

In this case, the instructor participants who were invited to participate in the study were 3 instructors who voluntarily participated out of the 4 instructors responsible for the two course modules selected for the study. The sample size was acceptable for qualitative study. According to [Malterud, Siersma and Guassora \(2016\)](#), in citing Smith, Flowers and Larkin (2009), having 3 to 16 participants is acceptable but limits generalizability. The 3 participants comprised of 2 course facilitators for respective course modules and 1 tutor supporting the first-year course module, were all male, having the following highest academic qualifications: Bachelor's degree ($n = 1$), Master's degree ($n = 1$), Doctoral degree ($n = 1$). All 3 participants indicated over three-years of experience in ODeL facilitation, since its fifth year of its establishment.

The learner sample from the two course modules was obtained from the respective Moodle class lists using stratified proportionate random sampling of the two classes, $N = 143$. The invitation was sent to 73% of the sample ($n = 104$), however, 90 participants voluntarily participated, representing 87% of the required sample, and 63% response rate of the population to be acceptable. [Wu, Zhao and Fils-Aime \(2022\)](#) asserted that response rate for educational research should be greater than 44%.

3.2. Data Collection

The study deployed the Moodle log data and instructor interviews as follows:

3.2.1. Moodle log Accesses

Moodle LMS log was downloaded as .csv file at the end of the semester, and then imported to Excel for pre-processing. The pre-processing involved filtering out by eliminating the data of those who were not part of the sample. The researcher then sorted and pre-processed the data by recording the count of each action per participant. For example, the count and time taken for each interaction type as guided by a framework that we devised to categorize the activities that represented the four types as follows:

- i) Learner-content interaction: Course View, Resource download, Assignment submit
- ii) Learner-instructor interaction: Assignment Status View, Feedback uploading, Forum posts, Announcement view, instructor specific interactions with learner/Feedback, Assignment creation
- iii) Learner-learner interaction: Forum views, Forum posts
- iv) Learner-system interaction: Overall number of Moodle loggings

3.2.2. Instructor Interview

The instructor interview for the selected course modules was designed to generate data to determine instructors' perceptions, dwelling on their experience in

facilitating in distance mode. The questions focused on the four types of interaction, specifically on content, assignments, learner communication, and technology specific questions. In addition, it examined challenges and benefits experienced by instructors. For example:

- i) How do you feel about quality of content for distance learning?
- ii) Do you provide timely feedback within assignment turnaround period?
- iii) How was assignment grading done?
- iv) In what ways do you encourage learners to interact with each other?
- v) How confident are you with use of Moodle?
- vi) How do ensure that the four types of interaction are met?
- vii) What do you feel are the advantages of using Moodle?
- viii) What do you feel are the disadvantages of using Moodle?

3.3. Data Analysis

In analyzing the Moodle log data in response to research question 1, the pre-processed dataset was imported to IBM SPSS version 29 to calculate frequencies of accesses such as counts, means and standard deviations, to address the objectives of the current study.

In regards to research question 2 and to aid in interpreting research question 1, data from instructor interview was analyzed thematically. The analysis was guided by Braun and Clarke's six steps of thematic analysis (Byrne, 2022). The steps involved: 1) manually transcribing the interview recordings verbatim and reading the transcripts multiple times for in-depth familiarization of the data; 2) coding using predetermined themes of the four constructs of interaction; 3) generating themes by identification of themes that recur across the interview data; 4) reviewing themes for accuracy and representativeness of the data items in line with the research objectives; 5) defining and naming themes by aligning each dataset with its theme and selecting extracts for reporting; 6) producing a report by building a narrative and interpretation of the data, supported by extracts. Thus, the analysis for the interview transcripts was largely deductive by use of predetermined categories and themes consistent with the constructs of interaction, and it was inductive by using the respondents' open-ended responses in drawing meaning of the themes. It was asserted that thematic analysis is majorly inclusive of inductive and deductive approaches with one dominant approach (Byrne, 2022).

A strategy to minimize researcher bias termed anecdotalism was applied by cross checking the responses and also engaging a research assistant from transcription to coding for second person interpretation. Anecdotalism refers to researcher bias in interpretation of responses because it is interesting to the researcher, when in fact it may not represent the general view (Ranney, Meisel, Choo, Garro, Sasson, & Morrow Guthrie, 2015). The study followed ethical consideration by observing confidentiality, anonymity and non-traceability for system data (Cohen et al., 2017). As such, the participants identifying details and course names were replaced with codes, and data was stored in a secure, password

protected location.

4. Findings

The findings showed that all instructors utilized the Moodle LMS for facilitating in ODeL. In terms of how much percentage of facilitation was done online in their respective courses, all respondents recognized the blended nature of the programmes and reported as follows:

“It’s difficult for me to say because face to face is once at the beginning of the semester, but online is throughout” INST1

“It’s tricky to quantify such because of the design of the programme. There is two weeks of face-to-face, of course the material is made available online” INST2

“Just about 40%. Since the assignments are done there. Not beyond 50%.” INST3

4.1. Ways that Instructor Facilitate in Distance Mode

In response to research question 1, the study analyzed Moodle log accesses for learner and instructor interviews.

4.1.1. Types of Moodle Log Accesses

Since the forms of interaction undertaken by the learners are largely influenced by the instructor’s strategies, the count of Moodle log accesses was established for each interaction type. **Table 1** show the types of Moodle accesses made.

Table 1. Count of learner accesses on moodle.

Variable	Type of Access	M	SD	SUM
N = 90				
LCI	Course view	9.52	4.68	857
	Resource View	1.31	1.61	118
	Assignment Submit	2.92	.52	263
LII	Feedback View	2.71	2.10	244
	Announcement View	0.27	0.67	24
	Assignment Status View	8.74	4.17	787
LLI	Forum View	0.08	0.31	7
LSI	Course Page View	11.31	5.53	1018

a. (LCI = Learner-Content Interaction, LII = Learner-Instructor-Interaction, LLI = Learner-Learner-Interaction, LSI = Learner-System-Interaction).

It was observed that learner-content interaction consisted of course views in

navigating the course page with average accesses per learner at ($M = 9.52$, $SD = 4.68$), and 857 views by sample, resource view per learner was at ($M = 1.31$, $SD = 1.61$) and 118 views by sample. The accesses that concerned working on assignments submissions had average access per learner at ($M = 2.92$, $SD = 0.52$) and 263 count by sample. In learner-instructor interaction, the highest accesses were made on assignment status submit which displayed details of new and submitted assignments with average learner views at ($M = 8.74$, $SD = 4.17$) and total 787 sample views. The second highest views were feedback view at ($M = 2.71$, $SD = 2.10$) per learner and 244 for sample, while the least was announcement view ($M = 0.27$, $SD = 0.67$) per learner and at 24 counts by sample. Learner-learner interaction had insignificant accesses at ($M = 0.08$, $SD = 0.31$), and 7 count by sample. The learner-system interaction which presented the overall number of loggings, supporting the other three types of interaction had ($M = 11.31$, $SD = 5.53$) views per learner and 1018 hits by sample.

The findings further depicted that three forms of instructor activities were done at various levels, namely giving formative e-assessments and feedback and uploading content, while facilitating discussions was not attempted.

4.1.2. Giving Formative E-Assessments and Feedback

The Moodle log indicated that instructors administered assignments for learners to do, indicating that 3 assignments were given. In addition, it showed clear instances where learners submitted assignments and viewed feedback.

Learners viewed feedback at least 3 times on average ($M = 2.71$, $SD = 2.10$), and assignment status view average views 8 times ($M = 8.74$, $SD = 4.17$).

The instructor interview showed a theme related to managing of assignments including marking and providing feedback. All three participants indicated that they administer at least 3 assignments in their course.

“This time I gave them 3 assignments, the second one was supposed to be mid semester to be written online but due to internet challenges it was changed into an assignment. The third one resembled the end of semester exams, it covered the whole syllabus. — the first and second just covered a few things”. INST1

“The assessment basically as I said it is three formats. First, its assignments that we send to students and they attempt. The second one is the exams where they come to the centers to write, the third one is practical and they submit a report, which is also assessed usually we give 3 assignments” INST2

“We give assignments on Moodle and exams. At least 3 assignments.” INST3

In regards to marking, findings showed that all participants marked assignments offline utilizing the pdf annotator:

“The ones that I marked myself, I like marking online. Immediately after marking, they see the mark including the script. My tutors mark offline then send to me and then we upload it. Of course, I tell them to upload after I check. They send all the scripts to me then I upload so that students can see. We use PDF annotator. INST1

“Basically, we mark the assignments on the soft copy using the pdf annotator.

We are supposed to upload the marked assignments ... —INST2

“There are two ways, you mark online on Moodle, open up the assignment and you mark one by one, the system has a marking tool. If not, we mark offline—after marking you save and upload, and then you command that students should see it. Marking offline is preferred because of internet.” INST3

All participants attested that they were able to provide feedback within the assignments turn around window of 3 weeks. Furthermore, all the participants demonstrated that online system improved feedback to learners:

“They get feedback on time. It’s a record if there is a query and some people are investigating things as proof that the student wrote the assignment” INST1.

“it’s better than trying to download and print and send through post the documents then issue to the center, Online students access the document right in their home” INST2.

“Accessibility by students its easy and quicker. When graded online it reaches students anywhere in the country” INST3.

4.1.3. Uploading Content

This considered ways that the instructor provided learning materials, which would facilitate learners’ engagement with content. The learner accesses on Moodle, which were associated with content included course view and resource view. It was found that access to content for a course page had 9 hits on average per learner ($M = 9.54$, $SD = 4.68$), while resource view for downloadable content had at least 1 hit ($M = 1.31$, $SD = 1.16$). In line with the instructor interview, all three instructors reported that the content consisted of complete module and notes, but there was limited interactive content as observed in their responses:

“I upload the module on the system so that the students can access. We also send the PowerPoint presentation that we have for the whole course” INST1

“It is PowerPoints and PDF from the modules. We have produced modules for the students and made accessible through online as well as teaching notes” INST2

“PowerPoint designed notes” INST3

Furthermore, the participants demonstrated that assignments were a strategy to facilitate pacing of learning and engagement with learning materials, also serving as a guide on milestones that students can use:

“Okay, so what happens is that I tell them that between now and the time we are going to write mid semester exams make sure to cover those materials within those months so that they can easily sit for the exams. After mid semester, I tell them that they can go up to a certain unit, but not to forget the units that they have already learned. Sometimes they do not cover the whole module” INST1

“According to the design of the programme, at the start of the semester students will come and interact with lecturers for 2 weeks and go back to their sessions. They know in the first 2 weeks they have assignment 1, somewhere in the middle they have assignment 2, then assignment two so that also matches with the content in their module. In between, they are told they will have a mid-semester and up to what level the mid semester will cover. In addition, the rest of the module

material should be covered up to the end of the semester. So, these are like milestones that students can use on their own to guide and pace themselves to learn to make sure that by the time ...” INST2

“I haven’t done much but there are some assessments, we form a quiz, upload some questions and their responses guide whether they are on the right track” INST3

4.1.4. Facilitating Discussions

According to the Moodle log accesses, there were insignificant views for announcement ($M = 0.27$, $SD = 0.67$) and discussion forum ($M = 0.08$, $SD = 0.31$) respectively. This was in agreement with the findings from instructor interview. The study observed that the instructors did not emphasize online interactions through forums between learners, but rather physical group interactions were encouraged by two instructors, while one instructor reported that attempts on online discussion forums had not worked. Participants further reported that the preferred alternative mode of communications with students was WhatsApp. The participants also reported that they relayed important announcements through a class representative:

“I have not done that. The only communication that I usually do to facilitate learner to learner is to send instructions through class representative, he informs others, and they do interactions. Occasionally we do on Moodle but usually, we do through WhatsApp. Including pushing assignment announcements, the class rep does that. I tell the class representative in that case they interact”. INST1

“At the moment, the system is yet to recognize that. The students just do the group discussions on their own. When they are doing the lab, it is the only assessment that they work in groups and submit a report. Official assignment doesn’t recognize that” INST2

“Most of the time there is low turn up for students to interact, from previous experience. They just look at the announcement when I make an announcement, and there is a very low turn up so we do not proceed.” INST3

The responses showed that the classes did not utilize online discussions for learner-learner interaction; participants indicated that learners were encouraged to interact amongst themselves physically:

“—to meet physically because of the challenges with Internet” INST1

“We encourage them to interact but we also emphasize that they should understand the materials on their own” INST2

“Study circles. We encourage them to do that as ODeL students” INST3

4.2. Challenges faced by Instructors in Facilitating the Distance Mode

In determining the challenges that instructors experienced in facilitating in distance mode, findings indicated technological, operational, and pedagogical challenges. These concerned limited internet access and digital tools; excess workload; and inadequate capacity to deliver online:

4.2.1. Internet Access

All the 3 participants were consistent on cost of internet as the main challenge affecting their work. Responses were:

“The internet, the cost, only once ODeL said they would give money but most of the time we use our own money” INST1

“There is a challenge of cost associated with Internet. —issues of internet connectivity and expenses of internet for online marking for example marking for over 100 students, not all students have feedback at the same time”. INST2

“Normally it's the internet. I prefer marking offline because of the internet.” INST3

4.2.2. Access to Mediating Technologies

INST1 reported on access to digital tools to achieve e-learning activities:

“Challenge of having smartphones, laptops and even computers. It's really a big challenge to all, especially to students, as you know most of the students come from villages and are not economically empowered” INST1.

INST3 indicated the lack of appropriate computer to aid in developing e-lessons and marking:

“The challenge that we have of course is PDF annotator, OBS system for preparing e-lessons. These applications are selective to computers,... there are some compatibility issues. Although there is a provision to physically use a room at ODL hub, this is costly for some who are residing far from the campus. I would suggest to ODL to provide uniform facilities like tablets and laptops.” INST3

4.2.3. Excess Workload

Instructors found the existing teaching obligations across the main campus, other face-to-face parallel campus as well as large ODeL class sizes as a compelling reason for ineffective management of formative e-assessment:

“If the class size is big, it has an effect. Apart from ODeL we also have to teach at the main campus, and another parallel face-to-face campus, so the tutors become quite handy” INST2

“The previous one we had to divide a class in alphabetical order, and share with a tutor to mark in time.” INST3

4.2.4. Capacity in Delivery of Online Learning

Although participants perceived to be competent in the use of Moodle, it is not clear if they were adequately skilled in the unique needs of facilitating online, based on the limited number of trainings indicated. It was observed that all participants had an opportunity to attend capacity building in e-learning systems.

“2 times” INST1

“3 times. INST2

“4 times” INST3

Specifically, the participants indicated that they received training in key areas of e-Learning including Moodle LMS and designing e-lessons:

“In the initial days it was introduced as a crash programme, to develop the

modules and orientation of the Moodle” INST1

INST 2 further elaborated that the trainings covered Moodle and production of video lessons:

“In the previous sessions we were asked to design online lessons” INST3

5. Discussion

The study findings from both Moodle accesses and instructors’ perceptions provided an insight into the level of facilitation of learning done in distance mode of blended learning. Instructors largely facilitated learner-content interaction and learner-instructor interaction on the LMS in managing assessments, which involved giving assignments and feedback for continuous assessments. Content was provided as complete, downloadable module, PowerPoint slides and notes but lacked interactive content. Findings showed that other forms of learner engagement as in learner-learner interaction were not done on the LMS at acceptable levels. It was determined that the degree of the ongoing support rendered was limited as a result of challenges experienced by instructors, ranging from technological, operational and pedagogical.

5.1. Ways that Instructors Facilitate in Distance Mode

Findings suggested that the instructors used assessments as an important strategy to help learners engage with content and progress in their academic work, while feedback helped learners in the attainment of learning outcomes, and to make necessary adjustments. This was expected because assessments were embedded in the program design to administer a minimum of 3 assignments as continuous, in line with average LMS assignment submit accesses ($M = 2.92$, $SD = 0.52$). It appeared that these expectations were met as both instructors and learners put in effort to achieve the requirement. Other studies have similarly shown that assessments and feedback were the primary form of engaging learners (Heidarpour & Dejah, 2022; Al-Momani & Pilli, 2021; Bahati, Fors, Hansen, Nouri, & Mukama, 2019; Nyika, 2016). The findings further showed that instructors uploaded feedback strategically as a onetime event. The instructors gave feedback by downloading the assignments for offline grading after which they performed a mass uploads of feedback file, as mentioned:

Basically, we mark the assignments on the soft copy using the pdf annotator. We are supposed to upload the marked assignments — INST2

Although findings showed limited learner-content interaction on the LMS, the study identified that instructors provided learning content, which was mostly in the form of a complete module and notes, which offered learners limited online interactivity with content. It makes sense to suggest that a preferred option by learners was to download, share and use the learning materials offline to counter internet challenges. It is also reasonable to assume that learners preferred to use printed modules. In regards to learner-instructor interaction, there was no indication of instructor-led, synchronous sessions where topic lectures were organized after the

face-to-face facilitation. This is in contrast with other studies where the approach was considered important in blended learning (Zhu, Berri, & Zhang, 2021; Heilporn et al., 2021). The potential reason for the lack of synchronous sessions in the study could be the course design.

Additionally, findings revealed that there was limited facilitation for learner-learner interactions, as the classes did not utilize Moodle for collaborations like group discussions based on the log analysis. This further suggests that instructor led discussions were not practiced. Likewise, it may be explained that the discussion forum was not fully enforced with average Moodle views ($M = 0.08$, $SD = 0.31$), and as was reported by INST3:

“Most of the time there is low turn up for students to interact, from previous experience. They just look at the announcement when I make an announcement, and there is a very low turn up so we do not proceed.” INST3

This is a weakness in the course design and is in line with Lim et al. (2021) who found low performance level of learner-learner interaction when instructors did not build the social element online. In contrast, other studies highly rated instructor led discussion forums (Onyema, Deborah, Alsayed, Noorulhasan, & Sanober, 2019; Bolliger & Martin, 2018). While others designed assessed weekly posts by learners for an assigned topic (Kuo & Bellad, 2016).

Nevertheless, it seems that there were alternative means to help fulfil the learner-learner interaction, such as physical, group meetings at satellite centers. This made sense, as reported by one instructor who encouraged physical meetings due to internet connectivity challenges:

“—to meet physically because of the challenges with internet” INST1

It seems that in this context there were efforts to fulfill social constructivism principles suggested by Saykili (2018) and community of practice by Lave and Wenger (2001), through physical meetings.

5.2. Challenges faced by Instructors in Facilitating the Distance Mode

The study established a number of reasons of the level of instructors' facilitation. These included technological challenges, lack of pedagogical knowledge of how to facilitate in distance mode, and excess workload.

5.2.1. Limited Resources

Although instructors expressed a commitment to use Moodle, their efforts were counteracted by challenges of limited resources. Study findings have suggested that e-Learning has not yet matured in the country due to lack of state of technological infrastructural (Kayange, 2021). Based on country's internet statistics, internet access was one of the lowest in the region at 9614 Mbps in 2019 (ITU, 2020). This suggests to carefully consider the adoption of technology, as what works elsewhere may not yield the same results. The findings further indicated a gap in access to ideal technologies including good computers with specifications to handle the instructors work, including grading of assignments and video lesson

recording. This was illustrated to be the scenario for most education institutions in Malawi (MoEST, 2019) and generally low ownership of ICT gadgets in developing countries (ITU, 2020).

Clearly, the instructor's competence of Moodle LMS was good as reported concerning the trainings they attended. This suggests that although the instructors had the capacity to utilize features on Moodle for more interactive learner experiences, they were not motivated due to challenges of internet that is the bloodline for communication in online learning:

"Normally it's the internet. I prefer marking offline because of the internet" (INST3)

Time spent online was restricted to management of assignments and feedback and providing some content. Nyika (2016) found similar challenges with internet access while using formative e-assessments. Similarly, Makhaya and Ogange (2019) noted that facilitators emphasized the need for more internet and technical support.

5.2.2. Pedagogical Challenges

Apart from the technological challenges, there is a possibility that there was limited capacity of facilitation strategies due to the few trainings conducted and lack of clear guidelines for learner engagement. One of the instructors who indicated that the system did not recognize the use of discussion forums hinted on this:

"At the moment, the system is yet to recognize that. The students just do the group discussions on their own" (INST2)

This pushes the claim forward that other learner engagement strategies were not enforced, consistent with findings for another study in a similar context (Mtebe, 2020).

5.2.3. Excess Workload

Instructors expressed challenge of having extra workload in facilitating in ODeL courses in addition to their regular face-to-face classes. This concern is consistent with other studies, further indicating that quality for distance education is compromised when it is less prioritized than the conventional classes (Makhaya & Ogange, 2019; Marques & Ip, 2021).

6. Conclusion

The study set out to investigate the ways instructors facilitated distance mode of blended learning, and the challenges they faced in the context of use of Moodle for establishing interaction. The findings showed that learner-content interaction was most frequent than other interaction, while the learner-instructor interaction was less frequent. The least interaction was learner-learner interaction. The learner-system interaction revealed the level of overall usage of the Moodle that the study sample took in the types of interaction facilitated for the courses.

Overall, the study revealed that there was inadequate online facilitation by the instructors in the distance mode. The findings further showed that, instructors

focused on using Moodle to share course content and manage assignments in fulfilling continuous assessments. The course design seemed to least prioritize other forms of ongoing support strategies for learner-instructor interaction such as synchronous sessions and learner-learner interaction such as discussion forums. Additionally, the study showed that challenges met by instructors were a major barrier in facilitating in the distance mode. These concerned limited technological resources including access to internet and appropriate gadgets and tools; excess workload because of working at multiple campuses of the institution; and the non-institutionalization of some pedagogical strategies like discussion forums.

The study supported the significance of instructor in distance mode in promoting knowledge building. Given the findings, the study has the following implications: First, the institution must put in deliberate policies that will promote the types of interaction in course design, for example, designing interactive e-lessons, recognizing discussion forums as a criterion for continuous assessment, encouraging use of synchronous sessions for increased learner engagement. Second, there should be clear guidelines on the role of instructor, as well as ongoing professional development. Third, it is important for the institution to address the technological challenges. This may include adopting of sustainable technologies such as Moodle mobile that allows offline usage, and providing suitable gadgets for instructors.

The study faced a number of limitations. The instructor sample was small, additionally; data was collected during the COVID-19 pandemic that affected the sample size of the target learner population to be smaller than what would have been realized under normal circumstances. As a result, generalization to a wider population should be done with caution. Future research should investigate the interaction that takes place on alternative platforms such as WhatsApp in order to determine the support provided to learners and possible cognitive development that occurs. In addition, a study should be carried out to determine the technical and pedagogical knowledge and skills level of instructors.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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