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# ENGAGEMENT PATTERN OF COURSE PARTICIPANTS IN AN ERASMUS+ BLENDED LEARNING PROJECT FOR TEACHER EDUCATORS

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## ABSTRACT

This paper reports engagement pattern of the participants, who are mostly either teacher educators or teacher students, in a cross-national blended learning project, within the context of an EU-funded project. The goal of the project was to support teacher educators' professional development to increase the ability in teachers' technological and pedagogical skills. The method includes the collection and interpretation of learning management system usage and the content within it, and the workshops are organized to animate the courses. LMS-supported blended learning courses engage the teacher educators mostly when the activities (i.e. online quiz, forum post, peer-group assessment) are applied as part of the face-to-face workshops, which may also be mediated by online video-conferencing. Further study should investigate the underlying factors behind the low online engagement, for instance, preferred level of technology blend and interaction design factors.

**Keywords:** Learning Management Systems; Blended Learning; Moodle; Teacher Education; Teacher Educator.

## 1. INTRODUCTION

Blended learning is one of the approaches to achieve student teachers' and teacher educators' continuous competence development objectives. The interpretation and application of the concept of blended learning vary — 'combining both face-to-face and digital media' is the definition applied in this study. The study of the development of activities, outcomes, and the engagement of students in learning management systems (LMS) and face-to-face sessions as part of blended learning courses have received sufficient attention in the literature on e-learning or educational technology (Filippidi, Tselios & Komis, 2010; Padilla-Meléndez, Del Aguila-Obra, & Garrido-Moreno, 2013). However, the teachers in higher educational institutions, particularly teacher educators, are a different target group that does not have the same certification necessity, struck with higher time-pressure, and additional obligations at work and family. So, the engagement of the teachers of higher educational (HE) institutions is likely to have a different pattern in the blended learning courses.

Blended learning for teacher educators in Europe and Asia (BLTeae) is an Erasmus+ project conducted from October 2016 to September 2019. One of the central contributions of the project is the development of a blended learning platform primarily for and in collaboration with teacher educators from three European countries (Denmark, Estonia, and France) and four Asian countries (Bangladesh, Bhutan, Malaysia, and Pakistan), involving eleven higher educational institutions. The goal of the project is to support teacher educators' professional development to increase the ability in teachers' technological-pedagogical skills. Ten pedagogical and ten technological competency-focused courses are developed using the open-source LMS Moodle. The project partner institutions organized workshops/training session facilitated by instructors from the same or other partner institutions to find inspiration and gain understanding of the content and activities quickly. The course content structure includes the course objectives and outline of activities, introductory video(s), one or more academic literature, individual or group-wise activities, submission of a reflection on the learning activities and key lessons learned, and

completion of a multiple-choice quiz. The estimated workload of each course is between 3.5 to 10 hours. Enrolled students are eligible for a certificate issued by the Aix-Marseille University through active participation in a course by submitting at least a reflection on the learning activities through forum post and/or attending quiz.

This paper investigates the engagement pattern of the course participants through face-to-face workshops and online course activities. The pattern of participation is explored based on the news posts regarding the face-to-face workshops on the project website and the logs of the courses in Moodle LMS. The research questions are:

1. Which events can be reported to show the engagement pattern of the participating teacher educators of a blended learning platform using Moodle LMS?
2. What generalizations can be drawn regarding the engagement pattern of the participating teacher educators of a blended learning platform based on face-to-face workshops and the logs of the courses in the LMS?

## 2. LITERATURE REVIEW

Bonk and Graham (2012) reviewed and reported three most commonly mentioned definitions of blended learning: (1) combining instructional modalities (or delivery media), (2) combining instructional methods, and (3) combining online and face-to-face instruction. They identified six major issues that are related to designing blended learning systems: “(1) the role of live interaction, (2) the role of learner choice and self-regulation, (2) models for support and training, (4) finding balance between innovation and production, (5) cultural adaptation, and (6) dealing with the digital divide” (Bonk & Graham, 2012, p. 47-49). They also categorized blended learning systems in three categories, which are shown in Table 1. The project and this paper report the use of Moodle LMS as *enabling blend* — enabling knowledge-sharing between the teacher educators in Europe and Asian partner institutions of the project. The engagement of participants depends on the reviewed LMS design issues, but the scope of this paper is limited to studying the quantitative variables on engagement.

**Table1. Categories of Blended Learning Systems**

Enabling blends	Primarily focus on addressing issues of access and convenience, for example, blends that are intended to provide additional flexibility to the learners or blends that attempt to provide the same opportunities or learning experience but through a different modality.
Enhancing blends	Allow incremental changes to the pedagogy but do not radically change the way teaching and learning occurs. This can occur at both ends of the spectrum. For example, in a traditional face-to-face learning environment, additional resources and perhaps some supplementary materials may be included online.
Transforming blends	Blends that allow a radical transformation of the pedagogy, for example, a change from a model where learners are just receivers of information to a model where learners actively construct knowledge through dynamic interactions. These types of blends enable intellectual activity that was not practically possible without the technology.

Source: (Bonk & Graham 2012, p. 47-49)

In many contexts, blended learning is proven to be more effective than fully face-to-face or online learning — in terms of students’ satisfaction and interaction, (Dziuban, Hartman, & Moskal, 2004; Wingard, 2004) time and place flexibility, ease of using resources, increase of interactions (Lock, 2006), and effectiveness of interaction between peers and instructors (Chamberlin & Moon, 2005). In teacher education programs, blended learning is an effective instructional strategy with exclusive features to improve discussion skills, develop their communities of practice, and achieve their course purposes

(Means, Toyama, Murphy, Bakia, & Jones, 2009; Zander et al, 2016). However, the engagement and perception of teacher educators in relation to their own competence development courses, both Asian and European, remained under-emphasized in existing literature. This paper attempts to contribute the engagement pattern of teacher educators' own competency development blended learning courses from Asia and workshops held in Asian contexts and LMS logs on learning activities. Moreover, according to Chanchary, Indrani, & Khalid (2008), Moodle log analysis is very useful and insightful in researches relating to educational data science, hence, the Moodle log is used in this study to summarize the engagement pattern using descriptive statistics.

### **3. METHODOLOGY**

The data for face-to-face activities of the different courses of the BLTeae project have been identified from the official website's articles section (<http://blteae.eu/articles>). The assumption and intention are to identify relationship between the participation in the face-to-face activities and the online activities.

We also analysed parts of the logs of the LMS <http://moodle.blteae.eu/> to analyse participants' enrolment and access pattern in 10 technological and 10 pedagogical courses. Participants' enrolment data are obtained by clicking Dashboard->Courses->Module-> and then selecting the individual course->Participants. Again, participants' activity data are obtained by following Course Administration->Reports->Activity Report. For feedback, evaluation, and encouragement through certification, the courses include forum post submission on the learning activities as a task and participating in at least one quiz. So, the logs of forum posts, quizzes and feedback activities are analysed for identifying the engagement pattern of the enrolled students (i.e. teacher educators). Due to the lack of clarity associated with General Data Protection Regulation (GDPR) and the ongoing policy revisions, analytics involving individual-level log for devising engagement pattern has not been conducted.

## **4.0 RESULTS AND DISCUSSIONS**

In this project, training/workshops took place in F2F mode and the teacher educators participated in the LMS for the learning resources and assessment-related activities. The following sections illustrate the engagement pattern of both the teacher educators and pre-service teachers primarily affiliated with the partner institutions of the project.

### **4.1 Engagement in Face-to-Face Sessions**

Table 1 shows that the project's website articles informs about 15 workshops/training events conducted during a period of ten months (October 2018 to July 2019) in Bangladesh, Bhutan, Malaysia and Pakistan. The articles inform about the events, participants, the host institutions, and the workshop/training facilitators. These events varies from two-hour workshops to four-day workshop series. The table might exclude face to face sessions if those events are not reported in the form of articles in the project website.

Most of the courses covered during the face-to-face sessions fall under the category of technological courses. Participants were relatively homogeneous — teacher educators and teacher students. The participants were from Asian and European countries, mostly participated by and hosted in Asia, and involved pre-service and in-service teachers, teacher educators, and administrative persons like school principals. In addition, multiple workshops in Bangladesh were facilitated by European course instructors through Skype. Furthermore, faculty members of a computer science and engineering a Bangladeshi university participated in two workshops and extended impact of the courses beyond teacher educators.

**Table1. Training & workshops held (01.10.2018 to 31.07.2019)**

Events	Courses/Topics	Location	Participants	Host Institutions
Training	Blended Learning: Facilitating a Higher Learning Experience	Bhutan	28 participants: school Principal, Vice Principal, 22 teachers and 4 trainee teachers	Wanakha Central School, Paro Bhutan
Workshop	Software Clicker	Bangladesh	23 faculty members	Institute of Education and Research (IER), University of Dhaka
Workshop	Interactive Radio Instruction	Pakistan	20 Prospective teachers of BS Education program	Department of Education, International Islamic University Islamabad, Pakistan
Training	New competence for online learning and teaching: activities for online tutors	Pakistan		National University of Modern Languages (NUML), Islamabad, Pakistan
Training	New competence for online learning and teaching: activities for online tutors	Malaysia		Universiti Teknologi MARA Sarawak
Workshop	Blended Learning, Software Clicker – Socrative and Design Science Research	Bangladesh		BGC Trust University Bangladesh
Training	Overview of the BLTEAE project	Malaysia	42 teacher educators	Malaysia, IPGKBL
Training	Learning management system (LMS)	Malaysia	42 teacher educators	IPGKBL, Malaysia
Training	Facebook in Teaching	Malaysia	42 teacher educators	IPGKBL, Malaysia
Training	BLT training course	Bangladesh		Bangladesh Open University, Bangladesh
Training	Training on E-portfolio and Use of Animations in Learning	Pakistan		National University of Modern Languages (NUML), Pakistan
Training	Developing instructional materials for blended learning	Pakistan		International Islamic University, Islamabad, Pakistan
Workshops	1. Flipped Classroom & 2. The Integration of Open Educational Resources	Bangladesh	14 teacher educators & 12 teacher educators respectively.	Bangladesh Open University, Dhaka, Bangladesh

## 4.2 Engagement in learning management systems

Table 2 shows an overview of the total number of participants enrolled, accessed, and engaged in activities of each of the 20 courses. Due to manual bulk enrollment by site administrator or course instructor, the number of 'accessed' participants in the course is less than the total number of 'enrolled' participants. The table also shows the total number of unique users viewing the different types of activities (i.e. forums and quizzes) and the assessment-related activities in the courses. On an average, number of participants engaged in 'discussion forum, resources, quiz, feedback and questionnaire' is around half of 'accessed' participants.

**Table 2. Participant in Online Module**

Course Category	Course	Teachers	Enrolled students	Accessed	Access % of Enrolment	Number of unique participants viewed	
						Discussion forum (D), Resources (R)*	Quiz (Q) & Feedback(F)/ Questionnaire
Pedagogical Course	Acquiring and processing media	4	78	60	76.9%	D: 24	Q <sub>1</sub> :44, Q <sub>2</sub> :19, Q <sub>3</sub> :8, Q <sub>4</sub> :7
	Scaffolding tool	3	63	43	68.3%	D <sub>1</sub> :11, D <sub>2</sub> :23, D <sub>3</sub> :12, D <sub>4</sub> :13, D <sub>5</sub> :16	Q:12
	Education for sustainable development	5	43	18	41.9%	D <sub>1</sub> :9, D <sub>2</sub> :9	Q:10
	Assessment practices	5	59	37	62.7%	D <sub>1</sub> :13, D <sub>2</sub> :5	Q <sub>1</sub> :23, Q <sub>2</sub> :13, Q <sub>3</sub> :13
	Blended learning practices	2	60	39	65.0%	D:13	Q <sub>1</sub> :12, Q <sub>2</sub> :9, Q <sub>3</sub> :6, Q <sub>4</sub> :8
	Project-based and Problem-Based Learning	1	31	8	25.8%	-	-
	Place Based Learning	6	54	38	70.4%	-	-
	Active learning	4	92	81	88.0%	D:26	-
	Reflective learning	1	62	37	59.7%	D:8	Q:9
	Basics of Copyright and Ethics in Online Learning	1	38	12	31.6%	-	-
Technological Course	Designing in Learning Management Systems	1	56	30	53.6%	D <sub>1</sub> :13, D <sub>2</sub> :8	Q:3, F <sub>1</sub> :18
	Introduction to ICT and learning design	1	60	37	61.7%	-	-

Common Gadgets for Teachers	6	52	28	53.8%	-	Q1:7 Q2:5
Social Media in Teaching	8	60	48	80.0%	-	-
Open Educational Resources	2	39	13	33.3%	D:5	Q:5
Creating and using video for teaching and learning	1	63	44	69.8%	-	-
Video Conferencing Systems	2	40	25	62.5%	D:2	Q:1
Software Clickers	1	59	41	69.5%	D:9	Q:21
Flipped Classroom	2	67	51	76.1%	D1:2 D2:3	-
Interactive Radio Instruction	6	40	16	40.0%	-	Q1:6 Q2:4 Q3:4

\* Not reported but available in the Moodle report.

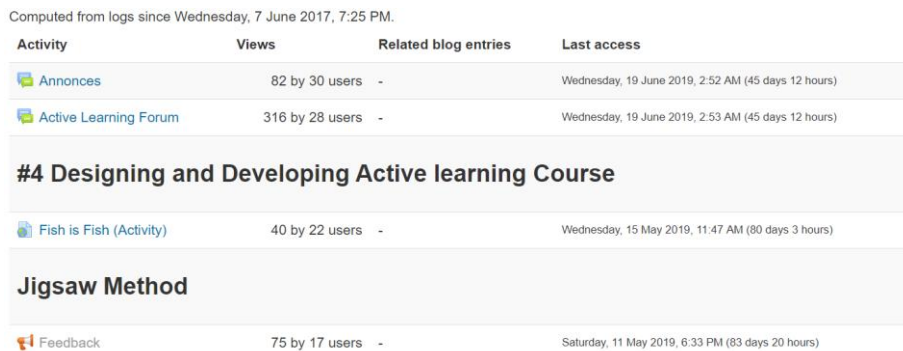


Figure 1: 'Activity report' from the 'Active Learning' course on Moodle LMS

### Education for sustainable development - All activity (all roles)

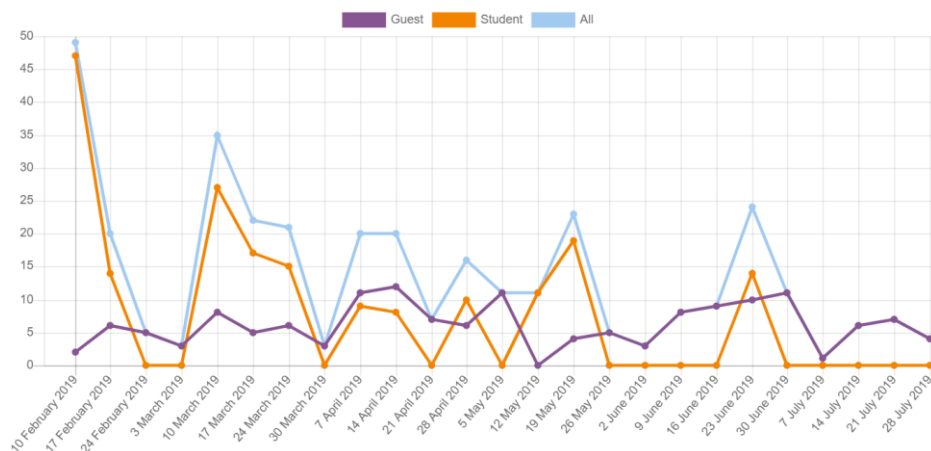


Figure 2: Last six months' 'statistics' of a course on Moodle LMS

The 'reports' function under the 'course administration' shows the 'activity report' (see Figure 1) from the date of course creation and the 'statistics' function shows graphical and tabular summary of last six months (from the date of query). So, the most comprehensive summary of engagement pattern can be viewed from the 'activity report', which shows the number of views by number of users. It is argued that activity is limited to participants mostly, activity rate is very low for guest users (see Figure 2). However, the rate of completion of the tasks associated with resources cannot be ascertained unless task completion option is activated and self-reported by the participants.

## 5. SUMMARY OF FINDINGS AND SCOPE OF FUTURE WORK

In summary, teacher educators, in-service and pre-service school teachers, school principals, and faculty members of higher educational institutions from four Asian countries and course contributors from the European countries participated in the face-to-face workshops and training sessions. Skype-mediated workshops are facilitated by course instructors from Europe in collaboration with an instructor or coordinator in Asia to assist participants. Face-to-face sessions were conducted mostly on technological (that technological-pedagogical or technology integration) courses as opposed to pedagogical courses. Based on the activity reports and statistics from Moodle LMS, it can be generalized that less than one-third of the students (i.e. teacher educators and others) accessing the online courses have submitted a forum post or participated in a quiz. So, the learning through reflection, assessment, and feedback activities of the technological and pedagogical courses on the LMS are not attractive for the teacher educators. Most of the quizzes were attended during the face-to-face sessions. Thus, LMS-supported blended learning courses engaged teacher educators when the activities (i.e. online quiz, forum post, peer-group assessment) are applied as part of the face-to-face workshops, which may also be Skype-mediated. Further study should investigate the underlying factors behind the low online engagement, for instance, preferred level of technology blend and interaction design factors.

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