Blended Learning Activities in Blended Learning Environments: Experiences from Mzumbe University, Tanzania

Haruni Machumu
Department of Educational Sciences,
Vrije Universiteit Brussel, Brussels, Belgium
hmachumu@vub.ac.be

Mohamed Ghasia
Department of African Languages and Cultures
Ghent University, Ghent, Belgium
mohamed.Ghasia@ugent.be

Albogast K. Musabila
Mzumbe University
akmusabila@mzumbe.ac.tz

Abstract
In Tanzania, learning management system (LMS) and content management system (CMS) such as Edmodo, Blackboard, Moodle and Canvas are used as platforms for BL (BL) delivery. Such delivery requires a combination of a variety of digital educational technologies and traditional instructional delivery modes in which assortment of academic activities support and enhance authentic academic learning. In this quasi-review article, we discuss several BL activities in BL environments (BLEs) with reference to Mzumbe University LMS nine years experiences. The paper used non-interactive research inquiry including literature review and quasi-participant observations. Ten BL courses including its actual practical execution both in LMS and traditional face-to-face were observed. Findings reveal that BL activities are conducted at distinct levels of learning and percentages. Further, the findings showed that traditional learning environments dominate e-learning environment with the percentage of utilisation. We observed both online, and offline BL activities based on nature of subject contents and context of activities. For successful adoption and implementation of BL pedagogy, planning and designing appropriate BL activities need to accommodate five significant aspects: instructors' professional development, learners' help desk for e-learning courses, learner's sociocultural background, institutions support and teacher and learner readiness to engage in authentic academic learning.

Keywords: blended learning, blended learning activities, blended learning environment, higher education.

1. Introduction

Innovative instructional technologies were integrated into the classroom for the first time, the majority of instructors believed that they were on tenterhooks. Others thought that it would be the same as the use of multiple educational technologies and teaching aids employed from time immemorial. For example, the use of an overhead projector, community radio, and television comes with significant advantages such as an increase of institutions offering distance courses. As such, integration of innovative technologies come with different names such as online learning, e-learning, blended e-learning and blended learning (Graham, 2006). Scholars suggest that the successful introduction of online learning and e-learning into the curriculum is contingent upon the students' engagement in authentic academic learning activities (Khechine, Lakhal, Pascot, & Bytha, 2014). Studies in the discipline of educational sciences suggest that technology, pedagogy and instructional approaches when skillfully integrated help students engage in meaning learning, achieve expected learning goal, increase performance, reduce drop out, and save time and unnecessary cost of movement (Graham, 2016; Norberg, Dziuban, & Moskal, 2011). The main purpose of this paper was to emphasise the use of blended learning activities in blended learning environments (BLEs) in challenging and poor resource context. Motivation to engage in this work emanates from a vast array of literature review addressing successful implementation of e-learning in developing countries where many challenges are hindering successful adoption of innovative technologies such as frequent power outage, unreliable internet connectivity, lack of professional expertise and lack of e-resources.

1.1 Blended learning (BL)

In teacher education domain BL has been diversely defined. Scholars defined BL as a combination of traditional face-to-face instruction with newly innovated computer-mediated instruction (Graham, 2006; Hung & Choub, 2014). As such, BL is referred to as "organic integration of thoughtfully selected and complementary face-to-face and online approaches and technologies" (Garrison & Vaughan, 2008, p.148). Based on Garrison and Vaughan's definition, BL conform the principles of practice and critical thinking in two perspectives, that is, there should be a basis of integration between face-to-face and online learning to create rewarding academic learning. Second, innovative technologies are used by teachers and students primarily for quality and effectiveness enhancement (Norberg, Dziuban, & Moskal, 2011). Both perspectives attain the principle of collaborative learning whereby the central focus is on supporting, enhancing and improving the learning process.

In 2009, Donnelly maintained that BL is an intellectually stimulating process which involves an educative environment that allows students to share training events, challenge each other and actively engage in developing new educational experiences. In this paper, we define BL as an instructional delivery approach that combines diverse traditional teaching modes and internet-based learning technologies (cf. e-learning, online, live video streaming, e-tutoring, e-book, book readings, recorded lectures, assignments, collaboration). In the final analysis, although, the presence of a teacher in traditional teaching and learning is vital, learner-centered models of teaching and learning seem to replace the teacher-centred instructional models. As a result, the emergence of innovative instructional technologies provides educators with unique opportunity to create BLEs that are highly interactive, innovative, meaningful and learner-centred.

1.2 Blended learning environments (BLEs)

Ever evolving education technologies are changing education practices with more time and resources pressed on developing, deploying and implementing newly innovated technologies enhancing learning environments (cf. e-books, e-library, e-exams, and e-school). BLEs has been described as a novel teaching and learning environments using both traditional and innovative digital instructional resources which conform to technological, methodical and didactic (Prohorets & Plekhanova, 2015). Moreover, BLEs is the kind of teaching and learning environment characterised by student self-regulation, the considerable students' autonomy and experiences, an unlimited learning place, time and physical materials (Singer & Stoicescu, 2010). It also offers students great control over time to when what and how to study (Bonk & Graham, 2006; Jokinen & Mikkonen, 2013), as such, it is termed to be a time blending learning environments. The blending of instructional objectives, strategies and the condition of online resources of teachers play a significant role in designing (Akkoyunlu & Soylu, 2008). That is, the learning process in BLEs concentrates on implementing designed and agreed to learn objectives through innovative instructional technologies adapted to transfer skills and knowledge in real time. In support of that scholars have argued that students who actively engage on BLEs tend to achieve higher grades compared to traditional teaching and learning environments because they interact, participate and share in well-designed educational environments with enhanced content. However, trends in the use of computer-aided technologies in teaching and learning (cf., e-learning, Internet, mobile learning, BL, online learning) has increased the number of universities enjoying its potential advantages (Makuu & Ngaruko, 2014). 2015). Most existing studies on BL activities are about attitudes, adoption, deployments and implementations, awareness, and technical aspects of the domain. The concepts of student learning activities in these studies were inexplicit. There are also hardly any studies to explicitly describes BL activities of students and teachers in BLEs. Therefore, this paper, try to expose BL activities of both students and teachers in BL environments in Tanzania universities.

2. Methods

In this article, both literature reviews and non-participant observation were used to collect information. Literature is addressing BL, BL activities and BLEs were reviewed. We used information retrieval systems processes such as indexing, searching and filtering to find relevant information to this paper. We searched relevant literature in the web of science and other academic databases such as EBSCO, Elsevier and Google Scholar. Initially, we used BL, and BLEs queries to retrieve relevant literature regarding definitions of BL and BLEs respectively. More information was retrieved regarding BL activities. However, we noted that concepts in comparison with the contents of the documents and information we needed such as e-learning, online learning and mobile learning. Based on experiences and familiarity with learning environment (cf., blended learning) at Mzumbe University, the authors decided to remain as a quasi-participant observer with a substantial minor role during the time of executing BL activities. The aim was to

distance ourselves from being directly involved in BL activities because at one time we were also engaged in delivering BL at the same university. This time we wanted to know what it takes when others do the same work.

3. BL activities in BLEs at the Mzumbe University

For successful BL in universities, both local and global features should be engaged. With regards to local features, the features should be based on students' context while global basis should be in place on understanding common knowledge. These enable students to adopt new learning environment in which they engage in activities that present effective educational practice. Although there are diverse learning activities in BLEs, the following learning activities seem to dominate the design of BL courses at Mzumbe University in Tanzania:

i. Group work and online collaborative learning

Students learn when they engage, connect, share and communicate with each other through purposeful and planned group work. In a learning context, group work has been defined as an assignment that intends to attract some students with the same interests working together to accomplish specified learning objectives (Bormann & Henquinet, 2000). Group work in BLEs fosters a variety of learning strategies that are needed with current employers and students themselves including team-based learning, problem-based learning, collaborative learning, cooperative learning, collaborative testing, and inter-professional learning" (p. 1422). These strategies are basically to enrich students' skills and knowledge in the 21st century working and learning environments. In this way, group work engages students in thoughtful discourse, immediate emotional connection, active learning and collaborative activities (Hwang, Hsu, Tretiakov, Chou and Lee, 2009). Though, in our study, we found that the face-to-face session possibly is complemented by regularly joint group meeting and compilation of group work and submission. As such, we found that group work attracts and motivates students to engage in BL courses because of availability of instructional materials, activities and evaluation. However, online peer assessments help the student to receive feedback from their peer and promote the co-construction of knowledge (Ku et al., 2013), helps learners engage in complex and cognitively challenging discussions which improve the quality teaching and attract authentic learning experiences.

ii. Interactions

In a BLEs context, interaction means communication of two or more people with the aim of solving the problem, helping each other, teaching or building a social relationship (Hwang et al., 2009). Students learn by directly interacting with diverse people, books, and content of their interest in diverse environments. In BLEs interactions should aim to achieve the following principles: problem-solving, information exchange, promotes appropriate learning and increases student motivation. According to Archila (2014), interactions allow reciprocal communication among student and student, student and teacher, student and tool interaction under a specific topic (Almasi, Zhu & Machumu, 2018; Saidalvi & Mansor, 2012). Moreover, studies have shown that in BLEs peer interactions should aim to achieve at least five principles of effective learning including problem-solving, information exchange, promotes appropriate learning, and increases student motivation (Hwang et al., 2009). In the face-to-face sessions, interactions focus on tutorial sessions, group discussions, student-self interaction, and student and teacher interaction which involve reflections and analysis of learning process and problem-solving have become more authentic since the inception of Web 2.0 technology (Fleck, 2012). In summary, the creation of meaningful interactions relies on the ability to communicate well, ability to use technologies for successful learning to enhance understanding of the shared information, knowledge and skills for actual meaning construction.

iii. Assessments

At the Mzumbe university, diverse, BL assessments including online peer assessments, online quiz, e-test and online group work have been institutionalised in universities (Machumu & Zhu, 2017). These assessments provide the structure of what was learned, what should be improved and what should be redesigned for successful instructional processes. As one of BL activities, assessment should be consistent with assessment criteria and student expectations. For example, the individual assignment should be measured with the well-designed assessment that encourages facilitation and deep understanding of subject contents. Vaughan, Cleveland-Innes and Garrison (2013) upheld that "assessment shapes the quality of learning and the quality of teaching" (p.41). Based on BLEs principles such as facilitation and active participation, group and peer assessment are key aspects of student assessment because based on both online discussion and live face-to-face lecture student will be able to review, critics, and help each other and, in turn, influence deep and meaningful learning. Additionally, online peer assessment provides opportunities for students to rethink and receive critique, correct themselves, and proffer feedback to peers, reviews their work for clarity, engaged in theirs' and others' understanding of the content and diagnosis of reasons for errors (Lwoga, 2014). BLE provides important features of assessment like discussion forums, wiki, true/false tests, and multiple choice tests which encourages appropriate learning.

4. Analysis of Mzumbe University LMS success based on ten selected BL courses

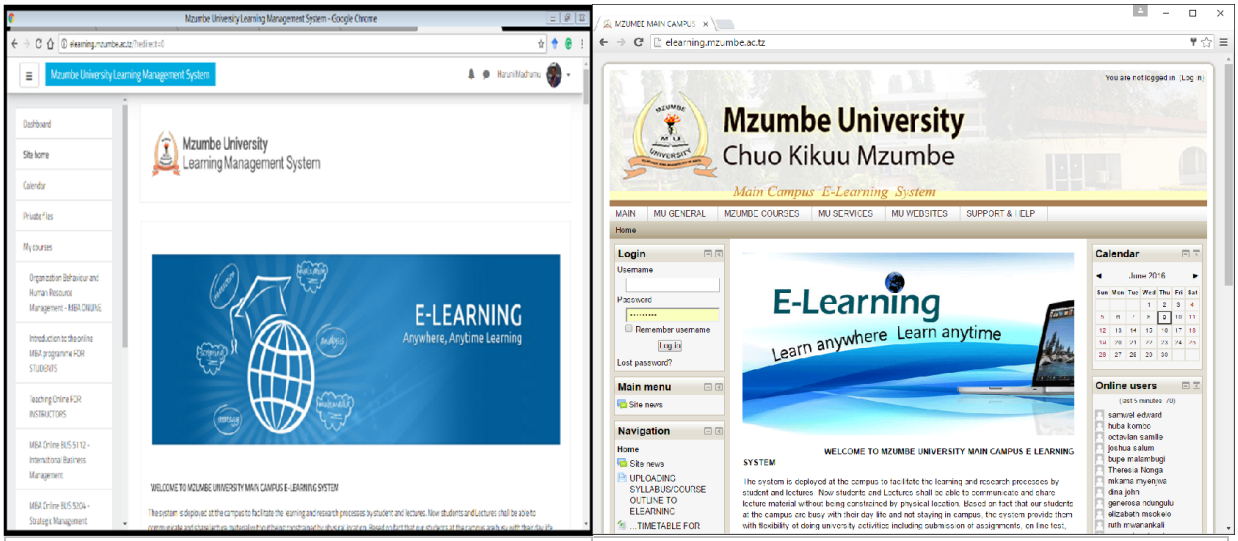
Mzumbe University has managed to supplement traditional face-to-face teaching and learning delivery with Moodle e-learning system which was officiated in 2009 (Machumu & Zhu, 2017). Possibly, since 2009, e-learning at Mzumbe has been used as BL platform. In such way, Mzumbe University BL is not a single standalone application, approach, tool and mechanism instead a combination of different tools, approaches and applications that are incorporated into formal managed learning environments in which academic staff can define an environment where learners can access learning resources, research and assessment tools. Our analysis is based on ten courses only regardless of vast arrays of courses registered in the systems. The main reason for selection of five courses is based on types of contents a single course tends to possess. For example, only ten courses found with the following learning components: (1) relevant links to websites, (2) syllabus with recommended readings, (3) e-resources and (4) lecturers' presentations (slides). Also, (5) teaching materials (uploaded files, chapter, monograph, articles), (6) case studies and seminar questions and (7) student group work for a discussion forum. However, the remaining courses were on tenterhooks having either one or two of the mentioned aspects above or without any of the same.

Table 1 Analysis of Mzumbe University LMS BL courses

BL courses	BL courses with update contents*		Academic Year	Number of Users
	Types of contents	%		
EDU 109	6	85.71%	2015/2016	206
LAW 226	5	71.42%	2015/2016	217
ECO 501	3	42.85%	2015/2016	44
ICT 326	4	57.14%	2015/2016	86
ICT 114	2	28.57%	2015/2016	148
LAW 124	5	71.42%	2015/2016	337
ICT 111	6	85.71%	2015/2016	1578
QMS 100	4	57.14%	2015/2016	182
COM 110	5	71.42%	2015/2016	460
ACC 221	3	42.85%	2015/2016	159

*BL course contents analysis based on types of contents out of seven

BL courses with contents attract students to engage in collaborative learning activities. Although our study was intended to reveal BL activities students engaged in BLEs, however, it should be clear that for successful utilisation of BLEs teachers' participation, awareness, professional development and motivation are significant conditions for achieving and fostering students both students and teachers' engagement in BL activities. However, the design structures of BL activities should be standstill with minor modifications.



New e-learning homepage 2017 | Old e-learning homepage 2009-2016

Figure 1. Old and new Mzumbe University e-learning system homepage

5. Analysis of trends in BLE utilisation at Mzumbe University

At Mzumbe university, both teachers and students' participants in BLEs. Through e-learning, email, and mobile learning students and teachers communicate issues relevant to academic as well as social events. Students ask questions in class, contribute to the discussion via both online and offline platforms. Through either combination of face-to-face, e-learning, mobile learning or only physical classrooms students receive feedback on their queries, academic performance and following report. However, the trend of BL activities performed by both students and teachers is based on the semester in the respective academic year (see Table 2) exposed that the number of courses has been increasing in e-learning system (cf., a platform for BL activities). Although the increase of a number of BL courses in e-learning system is a vital indicator towards successful implementation of BLEs, however, it seems that few BL courses stand to have contents which means few courses attract students' engagement in both online and offline learning activities. That is very few teachers engage their students in active and collaborative learning which hinder sharing valuable academic challenging tasks. Currently, a call for constructivist based blended learning which offers available possible learning opportunities and experiences should be adopted. From our quasi-observation, it seems that traditional instructional dominate the undertakings in BLEs at Mzumbe University and with digital instructional technologies, we call upon holistic efforts to transform the situation and influence constructivist-based BL delivery.

Table 2 Total number of BL courses per academic year with contents

Academic year	Number of courses	Number of BL courses with contents
2012/13	160	51
Sem1 2013/14	269	102
Sem2 2013/14	234	87
Sem1 2014/15	137	44
Sem2 2014/15	268	64
Sem1 2015/16	421	98

6. Conclusion

Blended learning activities are learning activities that teachers design to enhance teaching and learning process in BLEs. Students who employ BLEs in schools and out of schools learning are likely to perform well in BL learning activities due to its resourceful environment that is accessible anywhere at any time. However, to ensure successful students' participation in BL activities efforts should be made to train teachers on the new perceived roles in BLEs. The knowledge and skills teachers receive will help their students to manage, engage and participate in diverse activities initiated by a teacher under a specific learning module. However, combining digital and conventional methods proffer more flexible learning environment, personalisation of learning, inclusiveness and efficiency than traditional methods. The amount of time spent online versus traditional instruction is dependent on the nature of the instruction, the individual student needs, curriculum contents, the preference of the instructor and activities both teacher and students aspire to engage in BLEs. However, it is the view of the authors that for successful BL, teachers and students should balance their engagement activities in BLEs based on the nature of instruction, individual needs, time and preferences.

References

Akkoyunlu, B., & Soylu, M.Y. (2008). A study of student's perceptions in a blended learning environment based on different learning styles. *Educational Technology & Society, 11*(1), 183-193.

Almasi, M., Zhu, C., & Machumu, H. (2018, March). Investigating perceptions of teaching presence among instructors and students in blended learning courses in a Tanzanian Medical College. *Proceedings of the 12th annual International Technology, Education and Development Conference(pp.3404-3414)*, *INTED2018,* Valecia, Spain

Archila, Y. M. R. (2014). Interaction in a blended environment for English language learning. *Gist Education and Learning Research Journal, 9,* 142-156.

Bonk, C.J., & Graham, C.R. (Eds.). (2006). *The handbook of blended learning: Global perspectives, local designs*. San Francisco, CA: Pfeiffer Publishing.

Bormann, Y., Henquinet, J. (2000). A conceptual framework for designing group work. *Journal of Education for Business, 76* (1), 56–60.

Donnelly, R. (2009). Harmonizing technology with interaction in blended problem-based learning. *Computers & Education, 54*, 350-359.

Fleck, J. (2012). Blended learning and learning communities: Opportunities and challenges. *Journal of Management Development, 31*(4), 398-411.

Garrison, D.R., & Vaughan, N.D. (2008). *Blended learning in higher education: Framework, principles, and guidelines*. San Francisco: Jossey-Bass.

Graham, C. (2006). Blended learning systems: Definitions, current trends and future directions. In C. Bonk & C. Graham (Eds.). *The handbook of blended learning: Global perspectives, local designs*. San Francisco, CA: Pfeiffer Publishing.

Hung, M., & Choub, C. (2014). Students' perceptions of instructors' roles in blended and online learning environments: A comparative study. *Computers & Education, 81,* 315-325.

Hwang, W., Hsu, J., Tretiakov, A., Chou, H., & Lee, C. (2009). Intra-action, interaction, and interaction in blended learning environments. *Educational Technology & Society, 12*(2), 222-239.

Jokinen, P., & Mikkonen, I. (2013). Teachers' experiences of teaching in a blended learning environment. *Nurse Education in Practice, 13,* 524-528.

Khechine, H., Lakhal, S., Pascot, D., & Bytha, A. (2014). UTAUT model for blended learning: the role of gender and age in the intention to use webinars. *Interdisciplinary Journal of E-Learning and Learning Objects, 10,* 33-52. Retrieved from http://www.ijello.org/Volume10/IJELLOv10p033-052Khechine0876.pdf.

Lwoga, E.T. (2014). Critical success factors for adoption of web-based learning management systems in Tanzania. *International Journal of Education and Development using Information and Communication Technology, 10* (1), 4-21.

Machumu, H. & Zhu, C. (2017). The relationship between student conceptions of constructivist learning and their engagement in constructivist based blended learning environments. *International Journal of Learning Technology, 12*(3), pp.253-272.

Makuu, M., & Ngaruko, D. (2014). Innovation and development in blended learning mode in higher learning institutions: Interactive experiences from OUT's postgraduate students and instructors. *Huria: Journal of the Open University of Tanzania. 18*(1), 42-57.

Moskal, P., Dziuban, C., & Hartman, J. (2013). Blended learning: A dangerous idea? Internet and Higher Education, 18, 15-23.

Norberg, A., Dziuban, C., & Moskal, P. (2011). A time based blended learning model. *On the Horizon, 19*(3), 207-216.

Prohorets, E., & Plekhanova, M. (2015). Interaction intensity levels in blended learning environment. Procedia - Social and Behavioral Sciences, 174, 3818-3823.

Saidalvi, A., & Mansor, W. F. A. W. (2012). Utilising constructivists learning environment (CLE) in designing an online help for students in acquiring public speaking skills. *Procedia-Social and Behavioral Sciences, 66,* 518-528.

Singer, F. M., & Stoicescu, D. (2010). Using blended learning as a tool to strengthen teaching competencies. *Procedia Computer Sciences, 3*, 1527-1531. https://doi.org/10.1016/j.procs.2011.01.043

Vaughan, N. D., Cleveland-Innes, M., & Garrison, D. R. (2013). Teaching in blended learning environments: Creating sustaining a community of inquiry. Edmonton, AB: AU Press

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