Why the BigBlueButton as "the" on-time inclusive online teaching and learning platform

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ABSTRACT

All over the world, educators are still on the look-out for the most convenient online teaching platform. The authors of this paper view that the BigBlueButton is indeed Big and soon to be trending if not yet, in that it contains all the face-to-face classroom features, therefore allows for a smooth transition from face-to-face to online teaching and learning. The aim of this paper therefore is to share the authors' opinions and suggest BigBlueButton as an on-time, inclusive online teaching and learning platform. The authors of this paper adopted the horizontal addition theory triangulation approach; used one model and two theories to support the assumptions shared in this paper. The major focus for this paper is the use of BigBlueButton at the University of Eswatini. The authors of this paper view BigBlueButton as having four major advantages; offering balanced classroom interaction, its being synchronous and asynchronous as well as being collaborative in design.

KEY TERMS: Moodle, BigBlueButton, Face-to-face

I. INTRODUCTION

Though teaching and learning has gone Tech/online the 21st century learning philosophy still regard quality, equity and equitable as key pillars of inclusive education. Inclusive education is about ensuring social justice in education in spite of all (Mkhonta-Khoza & Dlamini, 2021).This implies that educators need to maintain the social purpose behind education which is equipping learners with knowledge, skills, attitudes, values and ethics (KSAVE) through use of learner-centered and participatory teaching strategies that are non-discriminative and are inclusive of all learner types. For so long teaching and learning has been conducted within the four walls of the classroom, the time for a great transition has come. Whether, educators and students are ready or not, teaching and learning has gone into the air. Therefore, there is need to focus on online teaching platforms. This study therefore sought to suggest the BigBlueButton (BBB) as an on-time inclusive online teaching and learning platform.

Background to the paper

Besides, COVID-19 social distancing rules, the inversion, widespread and possession of the internet and ICT tools have made traditional learning modes to become so unpopular while Tech learning becomes "the" way to go. Online/Tech learning is a platform used by instructors to teach. These platforms are referred to as Learning Management Systems (LMS) in that they are used to host, deliver, sell and create online courses (Chung et al., 2013; Hasan, 2019). The other names for LMS are Virtual Learning Environments (VLE) and Course Management Systems (CMS) (Chung et al., 2013; Hasan, 2019). Moodle, Udemy, Codecademy, Skills share, Future learn, Plural sight, Edx and Coursera are some of the most cited LMS/VLE/CMS) platforms. They vary in that each has got its own good purpose designed for. The inversion of these LMSs is slowly but surely grading Face-to-Face (FTF) as outdated. However, the authors of this paper believe that the most effective LMS is one that is interactive and open to use of the variety of 21st century teaching resources; allow for uploading of pdf files, audio, video, images, audio-visuals and text files.

Moodle

Out of the widespread and variety of LMSs Moodle is the most convenient and trusted learning system that allows anyone to access quality education; described as one that is participatory, non-discriminatory and inclusive. Literature reveal that given the three emerging modes of learning; part-time, full-time and blended,

Moodle is flexy to use and is accessible through the following interfaces; desk top, laptop, smart mobile phones and tablets (Oproiu, 2015; Ssekakubo et al., 2013; Hasan, 2019). In addition Moodle is easy to customize and use. Thus, it is a free open source software. Scholars therefore, describe Moodle as the heart of online learning (Moodle, 2018; Hasan, 2019).

Statistics reveal that Moodle has been infused into above 120 languages, in 2019 Moodle was used by almost 228 countries and by approximately close to 144, 332,474 people (Hasan, 2019, p.2; Moodle, 2018). There are many teaching and learning tools that are accessible through Moodle one of which is the BigBlueButton. The aim of this paper is to share ideas on the interesting features and usability of the BBB as one of the learning applications accessible through Moodle. Thus, increasing awareness and drawing attention to the BBB.

Eswatini

In Eswatini fear for lives and evidence of people dying of COVID-19 gave seriousness to online learning. In the Kingdom of Eswatini online learning began by being offered to grade 7, Form 3 and 5 and tertiary institutions. Different platforms were used by educators all over. In grade 7, the Kingdom of Eswatini offers the Eswatini Primary Certificate (EPC); in form 3 the Junior Certificate (JC) and in forms 4 and 5, the Eswatini General Certificate of Secondary Education (EGCSE) curriculum. As a state of emergency, to ensure continuity in education during the COVID-19 era the Ministry of Education and Training (MoET) saw it fit that lessons for grade 7, forms 3 and 5 be offered over the media to try and reach out to learners from all socio-economic backgrounds. These public online learning sessions started on Monday, the 6th of April, 2020 "Hlatshwayo in "Times of Eswatini, 7 April, 2020". Mostly used platforms were; the radio, television and the Times of Eswatini online. According to Nxumalo, Mkhonta-Khoza and Oloyede (2021) the major innovation that is being experienced by the education sector in the Kingdom of Eswatini during the COVID -19 era is that of changing the home into the new classroom. This innovation is viewed by Mkhonta (2021) as one that is also, bringing a change in psychosocial support issues especially with parenting styles. While, authoritative, authoritarian, involved and uninvolved parenting approaches have dominated most families for so long, online learning demands for new parenting styles. Finally, Mkhonta (2021) suggested that the psychological absence of the physical school environment and the teacher require that parents/guardians train children three key skills; self-management, improvisation techniques and digital group growth.

Tertiary institutions used different kinds of online learning platforms. On the other hand, the University of Eswatini, as the highest learning institution decided to standardize its online learning, revived, strengthened and enforced Moodle LMS. Thus, the major focus for this study is sharing ideas on the BigBlueButton as an on-time inclusive online teaching platform with regard to the teaching of students at University level where the BBB is officially installed as a teaching and learning software. However, limiting this paper to educators and students at the University level does not mean that the BBB on-time and inclusive teaching platform is confined to use by University students and through Moodle LMS only. The button is used with other LMS/VLE/CMS) platforms.

In the University of Eswatini, Moodle LMS was introduced way back ten years ago but became popular during the start of COVID-19. To adhere to COVID-19 social distancing, the University devised a strategy; divided students into two cohorts. Cohort one students were students doing their final year for all courses and cohort two students were those in non-completing stage. The University thereafter, embedded blended learning, interchangeably with the two cohorts thus, setting the pressure for use of Moodle LMS. The researchers in this paper view that as a change of classroom culture that requires lecturers and students to shift from old competency to new competency. To enhance proficiency with the much needed new skills with lecturers, the Centre for Excellency in Teaching and Learning (CELT) worked collaboratively with the technicians to offer staff training as means to improve effective use of Moodle. As per the norm behind any change, fears, insecurities and doubts arose amongst both lecturers and students while they grasped with confronting the loss of the old and familiar FTF sessions to blended or online sessions. Change theorists advised that each time there is change in education, attention must be paid not only to the myths and pitfalls but to the lived realities of the educators as well as people who are expected to accomplish the change (Evans (1996; Fullan & Miles, 2016). The researchers in this paper are educators; therefore lobby for the use of the BBB as a rescuer to the situation.

The BigBlueButton

BigBlueButton is a software or web conferencing online system initially designed for offering online classes (Al hashimi, 2020). It has got in-built tools such as chat messaging, live audio and video feeds that allow for smooth running of a virtual classroom in terms of participation. Its major advantage is that it allows students to see their lecturers and fellow students thus, getting them personally connected and making learning authentic

(Al hashimi, 2020). Considering the non-seriousness and not easy to believe assumptions about online classes, BBB assures the students that the class is a real one not imaginary.

BBB is an authentic online teaching platform/software that allows for the educator to facilitate teaching and learning, deliver information to the students using all means; visual, audio and audio-visual. Thus, besides teaching, the educator is able to share teaching resources of all kinds and can further communicate with the students through the audio and in written form.

BBB is one of the online teaching and learning tools found under Moodle LMS. The BBB was first discovered in 2007 in Canada by the Technology Innovation Management (TIM) program at Carleton University's Institute for Technology, Entrepreneurship and Commercialization in Ottawa (BigBlueButton Organization, 2021). The intuitive nature of BBB; easy to design, install, use and understand has led to it being embedded into the   following Learning Management Systems; D21, Canvas, Sakai, Moodle Cloud and Jenzabar. BBB has also been embedded with Schoology though it is deemed as a default virtual classroom (BigBlueButton Organization, 2021). Additionally, BBB is available for use in 65 languages, the authors of this paper view it as a king of the jungle, the most leading online teaching platform in that it can be integrated into all teaching and learning environments.

Whilst, other online learning platforms were initially designed in a boardroom, BBB was created in a school environment not a boardroom (BigBlueButton Organization, 2021) thus, it contain features of the classroom with the teacher and the learner as the most important occupants. Whilst, the former classroom viewed the teacher as the leader of the session, BBB is viewed as an on-time online platform in that it assigns the teacher the new role, that of being a moderator symbolically referring to a facilitator, mentor and orchestrator of learning experiences. However, the authors of this paper view that the role assigned to the learner in BBB, that of a "viewer" need to be revised into that of a "partaker". Another key feature of BBB is that of having the improved chalkboard that operates as a jack of all trade, allowing room for projecting information in; visual, audio and linguistic/word format (Cizmesija & Bubas, 2020).Thus, the BBB is viewed as an on-time inclusive online teaching and learning platform.

In the past ten years the classroom environment has undergone three phases of change; the traditional classroom, modern and transitional. Traditional classrooms uses books and chalkboards, the modern classroom uses whiteboards, projectors, audio-visual display equipment and digital boards contrary, online learning uses Information Technologies and Communications(ICT) to help in the development and acquisition of knowledge to learners from different remote locations in the likes of Google classrooms, zoom, blended-learning and etc (Basilaia & Kvavadza, 2020). The authors of this paper view that online learning demand the transitional classroom with all the contents of the former FTF classrooms packed together; an All in One. The authors are therefore labeling the BBB classroom as super online learning software in that besides being user friendly; it is loaded with all the key features of a classroom. Educators and students who use the BBB sail through a ship that is loaded with all the needed staff. The button takes them to places, allows them to cruise through using all forms of information sharing formats; as pdf, Microsoft power point, images, excel texts and word documents. The authors therefore, describe the BBB as an inclusive online platform. Scholars describe BBB as having a multi –user white board (BigBlueButton Organization, 2021). The authors of this paper describe BBB as having a flexi whiteboard in that it is convenient for use with all forms of video performance; educators upload high-resolution videos, medium and low, all accommodating videos at all levels of WIFI bandwidth. BBB is thus, cost effective. Thus, the paper aims to share ideas on the BBB as an on-time inclusive online teaching and learning platform.

Problem statement

Though Tech/online learning date back a decade ago, COVID-19 forced-tracked its practical sense thus, revealing the pitfalls surrounding its implementation. Therefore, the authors of this paper view that the fears, anxiety and pressure of doing away with the normal FTF classroom has led to BBB being the solution to teaching and learning in the new anomaly. This paper is also motivated by the reality that out of the growing number of research on online learning, none has narrowed down to focus specifically on the BBB. Thus, the study seeks to share view/ideas or information on the researchers' understanding of the BBB as an on-time and inclusive online teaching and learning platform.

Theoretical framework

Though the study is not empirical, the use of BBB is change in education, a concept that scholars have studied in-depth and have formulated a number of assumptions behind. Assumptions discussed in this study are based on one model and two theories; the Educational Change Model by Fullan (1982, 1991); Diffusion of Innovations Theory by Rogers (1976) and Connectivism theory by George Siemens (2004). Together the three will be triangulated through the horizontal addition approach to theory triangulation. This implies that the basic assumptions from two the theories and one model will be added together so that they give a complete picture.

Fullan (1982, 1991) Educational change model views every stakeholder in the education system as a change agent. The authors of this paper, one an Educator, the other a Technologist are described by the basic assumptions of the model as change agents. Beyond that the model motivates that all change agents have a greater potential for effective and meaningful implementation of change on condition they interact and collaborate with other change agents both in ones' own group and across all groups (Fullan & Stiegerlbauer, 1991). This study therefore is evidence of the authors' means to interact with other educators and students who are viewed as change agents when it comes to online learning on the use of the BBB that is viewed by the authors as an on-time and inclusive online teaching and learning forum.

Secondly, views on the BBB shared in this paper are embedded within the Diffusion of Innovations Theory by Rogers (1976). This theory focuses more on the characteristics of the innovation and the adopters. The basic assumption/argument of the theory is that besides, personal adoption and the potential to implement any change, an effective agent is one who also goes an extra mile to lobby for and exert influence on the behavior of other individuals. This paper is evidence of the authors' attempts to exert influence on the use of the BBB as people who have already adopted it.

Thirdly, the study is framed within the assumptions of the Connectivism theory by Siemens (2004). This theory draw/resonate from curriculum theories that postulates that though learning is much focused on the learners' acquisition of KSAVE, the mode/way of learning greatly influence effective learning far more than that. This implies that the mode of learning used must be conducive, relevant and suitable to the knowledge society. Now that society changes, knowledge changes as well. True to the assertion Herlo (2017, p. 332) cites that ", *Although organizations can and should plug in to the world of constant information flow and draw meaning from it, knowledge in networks is not controlled or created by any formal organization*". Siemens (2004) therefore, describe learning as the process of connecting across different information sources. Siemens used the term "Connectivism" to refer to learning networks (Bates as cited in Herlo, 2017).The theory view that the reality that the internet is bringing a transition in knowledge understanding should not be ignored. It therefore, concludes that knowledge is constantly changing and is to be created beyond the human participants' level; infused into machines as well. Just as the theory believes in use of knowledge via available machines, teaching and learning has already invaded Information Communication Technologies. The theory also, believes in acquisition and ability to use knowledge from a variety of sources, similarly, the BBB expose educators and students to use of information in video, audio, texts, image and audio-visual format. Based on the above assumptions, the authors of this paper view the BBB as adequate for use by educators and students in the 21st century classroom.

Horizontal triangulation of theories

The model and two theories are simply saying, all stakeholders involved in the use of the BBB are change agents whom their effective use of the BBB rely on them interacting with others involved in the use of this new platform. Additionally, the last theory emphasize that as long as the goal of education is to equip learners with KSAVE to be applied in society, when knowledge formats and sources in society shift, the learning platform must shift as well. Thus, the paradigm shifts from FTF sessions to virtual learning sessions.

Why the BigBlueButton as the on-time inclusive online teaching platform

BBB has got the advantage of being intuitive in nature; therefore, the authors of this paper view that it can be used even at low level technology environments and by low level technology educators and students. Additionally, technology is a continually evolving tool therefore, its use in online demand constant improvements, BBB by virtue of being a device installed in Moodle has got the advantage of being continually improved and reviewed to meet the demands of both instructors and teachers alongside changes in ICT (Hasan, 2019). Whilst, most grievances, challenges and complains on online teaching and learning platforms, is lack of training or guide on how to use them, BBB has the advantage of being a bottom-up online platform, built by teachers for teachers and learners. Users can join using a microphone, an audio or a webcam thus, encountered limited challenges. "*We are constantly impressed with the level of quality in BBB open source as its operation does not require prior knowledge*" opined Marc Matthes, the Director of Computer Networking Programs and Program Developer for Distance Learning Department in Iowa Central Community College, as cited in (BigBlueButton Organization, 2021). Thus, the paper shares ideas on BBB as an on-time inclusive online teaching and learning platform.

According to Al hashimi (2020) one of the factors that determine effective online teaching is quality of performance. BBB has powerful screen sharing as a major CPU that project video, audio and visual format content thus, its inclusivity in nature does not only enhance quantity of users but quality as well. So far the BBB accommodates over 200 people in a classroom environment and allows for easy taking of roll call as the teacher can download the student attendance list concurrently (Cizmesija & Bubas, 2020). The authors of this paper

view the BBB as having four major advantages; a balanced classroom interaction; its being synchronous and asynchronous as well as being collaborative in nature.

Balanced classroom interaction

Interaction is a major requirement of the teaching and learning session in that 21st century learning is about acquisition of KSAVE attainable through a two way process called interaction. Three kinds of interactions are major in a teaching and learning environment whether FTF, online or blended; lecturer-student, student-student/peer to peer and student-course content (Parker, 2009; Posese-Okesene, 2017; Hasan, 2019). BBB has got enabled communication tools to liaise between lecturers and students and students and their fellow classmates (BigBlueButton Organization, 2021). Besides, allowing room for classroom interaction BBB goes an extra mile to make sure that all learner types are accommodated in the interaction through opening room for sharing of all modes of information; visual, audio and audio-visual thus, accommodative of diverse learning abilities.

The synchronous nature of BBB

The synchronous nature of BBB (offering of a live teaching and learning session) makes it similar to the normal classroom situation. The only difference is that the walls of the class changes into the technology devices used. Whilst, the normal teacher-student ratio is 1-25 for the FTF classroom, BBB accommodates close to 200 students which is larger. The FTF class has the teachers' voice; BBB too does have the voice through the audio. Scholars argue that in the teaching and learning session the teacher should be audible enough for all learners to hear and respond, similarly BBB has a high quality audio. Teaching and learning is deemed as a two way process, students also are to contribute, BBB offers a professional learning environment; has the audio for both the students and the lecture to use. Same applies to the chat/message box for sending public and private messages just as learners may need to whisper to each other or the teacher direct instruction to both the larger class and to individual students. BBB does maintain teacher-student rapport ethics as it has got an application for learners to indicate that they need to say something, the EMOJIS used to raise a hand. BBB engages Webcams for use in holding visual meetings thus, it closes the psychological gap much cited as a challenge with online students who believe in or are used to seeing their lecturers physically. The authors of this paper view that this feature of the BBB maintains the philosophy behind the teacher viewed as a role model for the learner.

Whilst, the chalkboard is a major resource in the traditional classroom that has been used to produce so many good products, the authors of this paper condemn it as being selfish considering that BBB has a modified chalkboard referred to as a screen. Ideally, the FTF chalkboard was personalized, used solely by the teacher, contrary, BBB offers screen sharing for both the teacher and the students. To maintain professionalism, BBB has separate screens for use by the teacher and for use by the students to avoid competition. The provision of screens for both maintain the 21st century philosophy that students are not empty vessels, they come to class with existing skills, knowledge, talents and abilities which implies that the classroom environment must allow room for further development.

Further, BBB offers a screen not only for sharing the popular word document but other documents formats; images, audio, videos, pdf, and audio-visuals. Thus, it is rich and accommodative of all the much recommended teaching resources for the 21st century classroom. Why not an on-time inclusive online teaching and learning platform then?

The asynchronous nature of BBB (remedial)

The authors of this paper view BBB as offering room for remedial work just like the demands of the FTF class in that it hosts live and recorded sessions; live and recorded messages/chats; live and recorded audios, videos, notes, images and etc. Thus, allowing for later use and retrieval by the learners at the comfort and convenience of their own time and place.

The collaborative nature of BBB

In BBB educators and students collaborate through shared notes, polls, chats (public and private) and the white board, that is white and interactive for that matter (BigBlueButton Organization, 2021). The provision of the Multi-user whiteboard for students and teachers to draw together makes the BBB friendly to customize and use for all subjects and further enhance collaboration. Scholars argue that the 21st century teaching and learning philosophy is constructivist in approach (National Education Association (NEA), 2010; Partnership for 21st Century Skills (PTCS), 2006). As the students work together, they are able to construct knowledge by themselves thus, making learning a social collaborative exercise (Vygotsky, 2011). By virtue of collaboration being crucial in the 21st century for equipping students with group norms, values and ethics, the BBB also offers Break-out rooms for grouping the users into different teams. This feature makes BBB to allow for use of

differentiated learning approach as a recommended strategy for teaching in the 21st century in that students can present their works as individuals, in pairs and groups.

II.   CONCLUSION

In conclusion, BBB is cost effective, easy to use with all interfaces and can be embedded into different types of Learning Management Systems, meaning that it is inclusive in its design. It is thus, viewed by the authors as "the on-time inclusive online teaching and learning platform. Further, research may look into the usability of the BBB with the different interfaces; tablets, desk top, smart mobile phones and laptop.

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