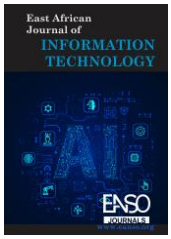

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Original Article

Exploring the Role of E-learning in Addressing Challenges Associated with Slow Content Coverage and Syllabus Completion among Graduate Students: A Design-Based Research

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ABSTRACT

The study aimed to evaluate the role of e-learning in resolving challenges associated with slow content coverage and syllabus completion among graduate students. The study was conducted at one university in Uganda on Master of Education in Educational Psychology students as respondents and lecturers as practitioners, based on Activity Theory. Methodologically, the study was a design-based research (DBR). Findings revealed that e-learning through the use of WhatsApp and Google Docs reduced time spent and wasted during physical classes. In conclusion, although e-learning speeds up teaching and learning, it has challenges and limitations that are both institutional and technical in nature. Therefore, universities, to reap the benefits of e-learning, need to equip faculty with computers and offer basic training for staff in e-learning pedagogies.

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INTRODUCTION

The 20th-century university graduate students experienced teaching and learning on a full-time physical contact basis (Kasozi, 2010), hence purely face-to-face teaching strategies. As a consequence, therefore, it was unavoidable for them to resign from their jobs or apply for workplace study breaks before embarking on further studies. The pedagogical mode then was face-to-face (Maldonado *et al.*, 2017; Stacey & Wiesenberg, 2007), characterised by lecturer-led pedagogies (Dickie & Jay, 2008) such as dictation and notes' taking. Computers, in their present 21st-century forms, were a very rare phenomenon (Horrigan, 2007), and hence teaching and learning were largely the mantle of the lecturer, using traditional teaching and learning strategies. With the emergence of the 21st century and its technological innovations, some aspects have evolved and experienced significant dynamics, while others have not. Whereas the computer evolution has taken place and graduate students can have the option of enrolling for evening classes, the methods of teaching and learning have stayed, largely because the lecturers themselves belong to a generation of teachers that were never exposed to computers and their affordances, hence continue to teach the way they were taught (Black, 2010; Gibson, 2009).

Through teaching Educational Psychology to graduate students at selected universities in Uganda, it has been eye-opening that the nature of learners keeps evolving year after year, and so should the teaching and learning strategies. Learners, specifically those pursuing graduate studies in Educational Psychology, are largely full-time high school teachers, registered for after-work classes scheduled between 17:00 hours and 20:00 hours. The earliest they can leave their workstations is 17:00 hours **(**Uganda Employment Act, 2006) and have to grapple with the peak traffic for not less than an hour. This culminates in late coming and absenteeism from most scheduled lectures. This negatively impacts content coverage and, consequently, syllabus completion. Absenteeism and late coming make the students who miss the face-to-face lectures lag in not only content coverage but also content comprehension. The nature of lectures also limits the amount of lecturer-learner, learner-learner, and learner-content interaction since the student project presenters are left to grapple with their topics while the rest remain passive (Kobusingye, 2022). These complexities hence, lead to a justification and need for the integration of non-face-to-face approaches such as e-learning to teaching and learning into the existing traditional methods, in the hope of saving time, fastening content coverage, and ultimately enhancing syllabus completion. Hence, the need for e-learning integration and EdTech intervention into face-to-face pedagogies.

Content coverage and syllabus completion are two very synonymous attributes in education and are vital to the achievement of high academic grades (Schmidt, 2009). Content coverage must rhyme and align with the learning goals (Homa *et al*., 2013; Miller *et al*., 1998). Hence, when determining the rate of content coverage, the educator must view it in light of the content objectives. Content coverage not only affects academic achievement but syllabus completion too; in fact, content coverage and syllabus completion are the same thing at different stages of teaching and learning. An increase in content coverage is related to an increase in syllabus completion regarding teaching and learning goals (Musingafi *et al.*, 2015). However, in scenarios and circumstances where teaching is strictly face-to-face and marred by student absenteeism and late coming, there is a likelihood that the two attributes will become negatively affected, which has major

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undesirable educational outcomes, such as poor academic achievement**.**

Most available literature insinuates that interaction through participation (Parker & Chao, 2007), improvement in academic grades (Ravid *et al.*, 2008) and blended learning (Graham, 2005) through collaborative learning are highlighted benefits of e-learning through Apps such as Google Docs and WhatsApp, there seems to be a gap in the relationship between these apps and content coverage and subsequent syllabus completion. Most of the focus in available literature is on face-to-face and online blends rather than purely online teaching and learning activities, which is a huge limitation. There is very negligible and scanty literature available to argue that in fact, e-learning assists in solving the challenges of slow content coverage and syllabus completion since it reduces the rate of student absenteeism; by the mere fact that e-learning Apps such as Google Docs and WhatsApp enable learners to achieve learning in their locations and time (Curtis & Lawson, 2001; Chen & Looi, 2007). It is significantly noted that most researchers such as Nakhanu (2012), Mutegi (2014) and Musasia *et al*. (2012) on content coverage were done in lower education levels such as primary and secondary schools and do not bring out the reality that the absence of e-learning could be one major reason why effective content coverage is not being achieved, hence creating a huge gap for investigations such as these to be conducted on university students, particularly those in unique circumstances such as fully employed postgraduate students who might need e-learning to solve these challenges.

When evaluating e-learning, researchers must carry out self-interrogation on the worth of undertaking it (Clarke, 2000), which in itself is a very vital part of every research. Hence, evaluation and value measurement in research are synonymous (Tessmer, 1993). Evaluation does not necessarily have to be applied in experimental research only, but can happen in many other types of research too (Bernard *et al.*, 2004) as long as the end objective is to improve the effectiveness of learning (Reeves, 1997). In research such as this one, lecturers have an opportunity to conceptualise the usefulness of teaching modifications (Dabbagh, 2005) like switching from purely face-to-face to blended learning strategies that involve both face-to-face and e-learning, but in whatever way it is done, research evaluation must follow a sequence of four stages, that is, determining a purpose, findings and strategies; evaluating the design formatively, revising the e-learning materials; and evaluating and implementing the e-learning events (Clarke & Mayer, 2003). This research, with embedded literature review, includes the problem statement and context, work context details, consultation with the lecturer as a practitioner, theoretical lens, research questions, methodological framework, implementation, intervention, students' evaluation of e-learning, discussion of research questions, conclusions, and recommendations.

WORK CONTEXT DETAILS

The study was conducted at the oldest and largest university in Uganda. The university has a well-equipped centralised computer laboratory in the main library and an African Virtual University facility at the School of Distance Learning. At the faculty level, computer laboratories are very scanty, not easily accessible, and not properly equipped. The university has an institutional rather than a decentralised ICT policy to encourage the use of online pedagogies, but on the ground, this is not the case; hence, a localised problem. As a result, postgraduate lecturers use the traditional face-to-face, pen-and-paper approach. The learners and lecturers who use computers for learning and teaching, respectively, do so as a personal initiative.

The respondents were Master of Education in Educational Psychology students. The class was composed of seven students (S 1-S 7), all male, admitted on the evening programme, and three lecturers as practitioners (L 1-L 3), hence a total of

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10 respondents. The course was PSE7111 (Personality Psychology). The students had access to an internet connection at the university, although about 50 percent of them did not own personal computers and did not have access to computers at their place of work, hence relied on their smartphones as learning gadgets. The prevailing mode of instruction, that is, face-to-face, came with challenges, mainly slow content coverage due to work-related late coming and absenteeism. It is against this background that the study sought to evaluate how the integration of the rarely used e-learning into the traditional face-to-face methods becomes hybrid (Young, 2002; Koohang & Durante, 2003; Valiathan, 2002) and reaps the benefits of faster content coverage and eventual syllabus completion. The practitioners were the lecturers.

CONSULTATION WITH A LECTURER AS A PRACTITIONER

A lecturer at the university was interviewed to establish if or not she has experienced similar issues with content coverage and whether or not she attributes this to purely face-to-face approaches and how e-learning could be a relevant intervention. In response, she asserted,

> *For sure, the purely face-to-face lectures have not helped in terms of me completing the planned course content because the students, however much they try, can never make it to the lectures on time, never. So, usually, what is covered is always half of what has been planned. And with Master's courses where the students themselves are the presenters of topics, the presenter himself can arrive late for the lecture, yet the learning cannot commence in his/her absence (L 1).*

From this response, it is observed that similar challenges associated with late coming and absenteeism have been encountered among Master's students due to the difficulty in achieving work-life balance, as caused by employment and family demands. This was further asserted by a second lecturer practitioner who related the challenges of face-to-face teaching and learning to work-related demands, which create work-school balance issues.

> *A bigger percentage of graduate students are full-time employees. These jobs are the source of income that partly pays for the fees for the courses they are pursuing. Hence, working for them is inevitable. Creating and achieving a work-school balance is a hard nut to crack for most of them. Sometimes, and most times, the 17:00 hours that most employers and workplaces stress as the office closure hour is not strictly adhered to, so by the time the students brave the traffic to the university, time is lost (L 2).*

This was further elaborated upon by another lecturer of graduate students who seemed to attribute the cause for slow syllabus coverage to purely physical teaching strategies in terms of demands at both school and work workplace,

> *Time is wasted on demands and preferences for physical lectures, physical discussion group work, and physical coursework assessment. These are time-consuming and lead to delays, worsened by demands at the workplace. Most workplaces do not support career advancement among employees, and when only physical strategies are put in place, the employees who are students cannot conceal their student status. All these factors lead to late coming and slow coverage and completion of syllabi and content, respectively. It would be good with online teaching because then, it would be hard for employers to detect that a member of staff is pursuing further studies (L3).*

Whereas this study stressed employment as a factor, family demands did not appear as a vital cause. A lecturer admitted that teaching has been largely face-to-face, but her experience as a lecturer in the

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past showed that online teaching reaps the benefits of engagement, as she asserted.

> *From the educational technology tools used in online teaching strategies, for example, using Google Slides and Google Docs, I found that engagement among learners and between the lecturer and learners (learner to learner, and lecturer to learner) is enabled. Engagement is a vital component of teaching and learning, and lessons that are engaging move faster than those that lack it, and this can speed up learning and completion of topics (L1).*

To the same lecturer, blending face-to-face with e-learning strategies speeds up content coverage because some classroom tasks can be tackled outside the class time, and time would be saved for more complex areas.

> *One fact I have realised is that online and face-to-face approaches are more complementary than competitive. Once the instructors master this fact, it can serve well in enabling quick content coverage, as some parts of the syllabus may require either of the two approaches. So yes, as much as online methods are good and quicker, they need to be used hand in hand with one another. Both have advantages and associated challenges (L 1).*

This response can be viewed as a complementary view to the one already raised in this study. Specifically, the lecturer consultant stresses that content coverage is sped up through e-learning because it enables split-site teaching and learning. Therefore, the practitioner views the problem in the same light and there is nothing peculiarly different in her experience, and she strongly advocates for e-learning as an additional blend to face-to-face pedagogies.

THEORETICAL LENS

For e-learning integration to reap the desired goal of faster content coverage, it became imperative that all learners are active participants and are in a learning environment that is guided by certain conditions; hence, the theory that guided this research and evaluation was the Activity Theory (Kaptelinin, 2013). The mediating artefacts were Google Docs and WhatsApp with their respective affordances (Roseth *et al.*, 2013; Barhoumi, 2006). Google Docs enables interaction-ability, edit-ability, and comment-ability (Yim *et al.*, 2016) while WhatsApp enables interaction and timely response (Bouhnik & Deshen, 2014; Barhoumi, 2015). With Google Docs, learners produce and submit task results with the end benefit of continued lecturer guidance because errors are easily identified (Firth & Mesureur, 2010). Collaboration and interaction are enabled through self and peer assessment (Weaver & Cotrell, 1986). The subjects were Master's students who were too busy to report for physical classes on time. The objectives of online learning strategies integration into pre-existing face-to-face approaches were to improve content coverage through solving the effects of absenteeism from and late coming to physical face-to-face class sessions.

Division of labour was apparent, that is, every student had a topic to present to the class that had been randomly selected by the lecturer, who was an overseer. The rules included posting presentation content on the class Gmail list two days before the actual lecture/presentation. The community included the students, lecturers, internet connection in-charges, and computer lab experts to help with the use of the apps. The teaching and learning were largely learner-led and were based on the application of the theories of personality from the learners' socio-cultural bearings (Almutairi, 2007) at work and home, under the course, "Personality Psychology.'' All these interlocking components of the activity theory worked together to lead to the achievement of the course objectives using the EdTech tools of Google Docs and WhatsApp. If content coverage was to be improved, these components had to be present. There were two research questions that are, in what ways does e-

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learning improve content coverage? And, what challenges does E-learning pose?

METHODOLOGICAL FRAMEWORK

The framework within which this evaluative research was conducted was Design Based Research (DBR), which is based on the analysis of the real problem situation, development of problem-based solutions, testing and refining the solutions and reflecting before producing the principles and enhancing the actual implementation of the solutions (Herrington *et al.,* 2007; Amiel & Reeves, 2008). The four phases followed were: analysis of the problem, development of solutions, iterative cycles of testing and refinement, and reflection to produce design principles and enhance implementation of solutions. The problem analysis was done from the perspective of those who were experiencing it, that is, the graduate students, the lecturers, and the researcher (Herrington & Reeves, 2011). The major aim of this problem analysis was to find an enduring solution to low content coverage, which has direct implications on content coverage and syllabus completion, a major challenge in postgraduate studies (Design-Based Research Collective, 2003). Data on the evaluation of the use of e-learning was collected through one-on-one online interviews with the graduate students and lecturers as practitioners and analysed thematically (Maguire & Delahunt, 2017; Castleberry & Nolen, 2018). Self-reflection analysis also took place, that is, a personal (lecturer) reflection about the experience, right from the beginning to the evaluation stage.

Among other aims, Design-Based Research targets new practices (Barab & Squire, 2004) such as e-learning in a traditionally face-to-face setting through employing a multiplicity of strategies. Although e-learning has been tagged as socially irresponsible (Reeves, 2000), due to the limited or absence of face-to-face contact and interaction, it can still be said that non-face-to-face interaction and learning are possible and achievable. E-learning solves the problem of absenteeism and late coming implications, delay of content coverage, and consequent slow syllabus completion. According to Herrington *et al*., (2007), Design-Based Research addresses real-life situations and challenges in the classroom, such as these, and is based on principles to design solutions to real classroom hurdles.

This study went through the four levels of the framework, that is, analysis of the problem (absenteeism/late coming and their consequential slow content coverage and slow syllabus completion), proposing of solutions, that is, introduction of e-learning through using Google Docs and WhatsApp which were selected and designed because of their affordances of access-ability, interaction-ability, edit-ability and mobility (Yim *et al*., 2016) and potential to improve the pace of content coverage and syllabus completion; testing and refining ,that is, creation of an email list in Google mail, posting learning materials and students presentations into the site, enabling editing and discussion on the forum through use of Google slides, enabling discussion, interaction and communication electronically and posting final material for every student's consumption, reflection on how constructive and otherwise the new innovation of e-teaching and e-learning went and the emerging new problems from the new approach and how these problems can be mitigated.

IMPLEMENTATION

At the evaluation stage, the four levels of evaluation as suggested by Kirkpatrick and Kirkpatrick (2014) of reaction, learning, behaviour, and results were considered, but with the main purpose of aligning with the activity theory. Following Kirkpatrick and Kirkpatrick's (2014) model of research evaluation, every end was a fresh beginning through iteration, which took place at different periods of the implementation process. The learners in this study were briefed on how the new mode of study was to be different from the usual face-to-face sessions, characterised by individual student presentations on

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lecturer-dictated topics. What was different was that the learners were to work individually, and it was no longer a matter of presenting while the rest of the learners merely listened, but the approach of using individual presenters, while promoting feedback from the lecturer and fellow students, aimed at promoting interaction and participation. The rationale of iteration was to fill emerging gaps and adhere to the activity theory ideas. Hence, the bases of the iterations were Kirkpatrick and Kirkpatrick's four levels of evaluation and the activity theory. More importantly, the learners were briefed on how this was no longer a purely face-to-face session but a blended one with e-learning as a new integration, hence blended learning.

All learners were encouraged to own Gmail accounts, and about six out of the seven students were already signed in, and the one with no Gmail account was encouraged to open one in order to benefit from this new e-learning experience. The class group leader was in charge of overseeing and implementing this. However, this was not as successful and simple as expected. Instead, the group leader just opened a mailing list that included both Yahoo and Gmail accounts, and this was not going to serve the perfect purpose of using Google Docs as a learning and teaching platform. The principle here was that everyone must have active Gmail and WhatsApp accounts, and this sent the process back to the drawing board, and the lecturer had to open the class page herself as the "administrator" and this was named PSE7111 class within the class Google Drive.

The learners were briefed on how to use the Google Docs App for learning and interaction purposes, that is, how to post project presentations in the PSE7111 class drive so that the lecturer and fellow students can access them. The first presenter did not post this before the actual presentation, and because of this, the in-class online interaction could not take place, yet e-learning was introduced to boost in-class and out-of-class learner-to-learner, learner-to-content, and learner-to-lecturer interaction to boost faster content coverage. Hence, this required another round of iteration. The design principle was that work to be presented in class was to be posted two days before the presentation (advance organisers) so that the learners and the lecturer could access it beforehand, read it, and this would hopefully save time, hence quicker content coverage and syllabus coverage. This, after the iteration, indeed increased the speed of topic presentation and completion and made fellow learners and the lecturer more involved in the project discussions.

The first presentation was posted on a Google Doc, which also necessitated iteration with a guiding principle that learning should be interactive, and this could only be achieved through the use of Google Docs due to the affordability of editability. This led to new instructions regarding the use of Google Docs because of its teaching and learning affordances. It was also noted that whereas the in-class discussions of online materials became successful in achieving content coverage and interaction, the online discussions in Google Docs didn't take off at the expected speed. This required another iteration, that is, taking the students back to the basics of how to use Google Docs for discussions. The design principle at this stage, that is, online interaction, was expected to be both in-class and out-of-class interaction/active learning. The students were henceforth taken through the steps of "opening a Gmail account, going to Google Drive, going to the PSE7111 class, choosing the posted document, choosing edit, selecting suggest changes, and starting the discussion.

To this, only about four out of the 7, plus the lecturer, were able to interact online using Google Docs. On the WhatsApp platform, an online presentation on Carl Jung and the Analytic theory of personality was done. Although the topic was ably done and covered in one hour, the online interaction was very minimal, and this was attributed to the time at which it was done, that is, at night. However, there was a lecturer-learner interaction. This was suspected to have caused minimal learning and this

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led to another iteration, that is, the lecturer decided to cause a re-doing and re-reading of the topic, hence, the repetition design principle leads to learning, through an assignment task on the topic which would be submitted for marking and considered as coursework assessment. This assignment was to be submitted online for assessment, and the learners were cautioned that their submissions would be subjected to Turnitin software for plagiarism detection of the similarity index.

After the previous iteration, it was observed that quicker content coverage was steadily and progressively achieved because the learners were now highly involved in both in-class and out-of-class online discussions (interaction), especially using Google Docs. Hence, content coverage became evident. For example, a theory of personality that would have taken two lectures (six hours) to cover in the traditional face-to-face sessions was in actual sense covered in one lecture (three hours) because of the use of e-learning. The learners accessed the content posted on the class drive beforehand, and this reduced the amount of unclear content and questions raised during the actual presentations, hence saving half of the time required to achieve the objectives/learning goals. Hence, the integration of e-learning into face-to-face sessions that led to blended learning also led to the achievement of faster content coverage.

INTERVENTION

To evaluate the four levels of Kirkpatrick & Kirkpatrick (2014), three-phased questions were designed for the learners and sent to them for response. This question was, “Do you think online teaching and learning are a solution to late syllabus coverage among graduate students?” All the students responded, “Yes.” After this response, further iteration with the principle that evaluation is four-phased rather than three-phased took place (Kirkpatrick & Kirkpatrick, 2014). Hence, a new interview question, “How do you think e-learning facilitates faster content coverage among graduate students?” was posed, to which one of the students responded,

> *Without e-learning, I would have given up on the course. I work full time and my employer cannot release me before 17:00 hours. More so, even if I were released, the traffic jam around that time would not enable me to reach the lecture room in time. But with the e-learning option, I simply log in to the workplace computer and study while I am still at the work premises. I have realised that the topics move faster because there is no time wastage involved. How I wish all lecturers opted for online teaching and learning (S 3).*

It was after viewing the responses from another student that question one was not specific on the knowledge acquired and just required the student to mention in either agreement or disagreement; hence, his response was not sufficient for this level. From the same student interviewee, it was observed that the fourth-level questions were not as evaluative and conclusive as the main objective of the study, that is e-learning, content coverage, and other forms of significance. These two observations led to further iterations with the guiding principle of evaluation being guided by the objective; hence, a new and more detailed interview guide was once again sent out to the students, which required them to specify the knowledge acquired.

At each phase, a question was designed for self-reflection, for example, at the reaction phase, the researcher was required to reflect on students' general feelings and attitudes towards e-learning and the general use of Google Docs and WhatsApp. At the knowledge phase, the researcher was required to reflect on the sufficiency of content taught and learnt using WhatsApp and Google Docs. In phase three, that is, behaviour, the researcher was required to reflect on the new behaviours that were observed among the learners as a result of e-learning. For phase four, that is,

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results, the researcher was to reflect on whether she would still use e-learning continuously up to the end of the semester and in future lectures, and why. Regarding phase one self-reflection, she felt that the learners were shocked that e-learning was a requirement since no other lecturer had suggested it. They seemed resigned to their fate in this reality of a new learning method. Whereas some were excited at the prospect of learning through new phenomena like Google Docs, others were eager to see how WhatsApp, which they largely knew as a mere communication and socialisation tool, would transgress into a pedagogical application.

However, some of the students were adamant about e-learning due to age-related concerns. With time, the researcher observed attitudes favourably changing, and every student warmed up to the possibility. In phase two, that is, knowledge, the researcher gained confidence that because project presentation materials were posted via email, Google Docs, and WhatsApp beforehand, and learners were aware that the lecturer and peers were to read them and provide feedback, they did their best to produce sufficient content. It was a pleasant surprise that much knowledge was acquired by the learner through learner engagement (division of labour). At phase three, that is, behaviour, it was observed that with time, the learners became comfortable with the use of WhatsApp to ask questions on discussed topics for reflection, while the class drive in Google continued to be busy with activity. Sometimes, the content was even posted by learners before the stipulated time. Hence, the students' behaviour was marked by active use of the Google Docs and WhatsApp e-learning tools to achieve learning and specifically, quicker content coverage. As far as the phase four question on whether the researcher would use these tools to teach in the future was concerned, the answer is yes because it speeds up content coverage. The content that would have been completed at the end of December, 2024, was completed on November 17th, 2024, with an opportunity to carry out a wrap-up of the theories of personality, something that was not possible when only face-to-face sessions were used in the past.

STUDENTS' EVALUATION OF E-LEARNING

Following the four levels of evaluation of Kirkpatrick and Kirkpatrick (2014) of reaction, knowledge, behaviour, and results, an interview was conducted with a sample of seven student practitioners. What emerged from interview responses can also be categorised in the form of four levels. Under the phase of reaction, the students reported that they had mixed feelings regarding the use of Google Docs and WhatsApp, and they attributed it to knowledge and exposure factors. Despite their age falling in the range of millennials, they seemed not to be well versed with the proper use of computers, especially for pedagogical purposes, as one respondent asserted,

> *I am not technology-savvy, and I have this feeling that technology is meant for more authentic and technical audiences than mere students like us. To be sincere, at one point, I experienced a feeling of anxiety because this was going to be a new experience for me. As far as Google Docs and WhatsApp being relevant learning tools for postgraduate students such as myself, my answer is yes, largely because it has proven to be a time-saving/friendly approach (S 1).*

This is in agreement with the argument already presented that time saved indeed leads to an improvement in content coverage. Another student argued,

> *Responses on Google Docs and WhatsApp can be received at any time without any inconvenience. E-learning is a time saver and communication is quick since students and lecturers do not have to be physically present and with each other for learning and teaching to take place. Those who get stuck in a traffic*

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> *jam can no longer be affected since learning can still happen anywhere (S 2).*

Regarding whether the use of e-learning tools required extra effort from them, they reported in varied ways. One student who concurred argued,

> *We as graduate students need learning and re-learning before we can practice using the tools we are required to use."* while another student reported, "*There is no need for extra effort based on the fact that content size and distance do not matter and internet charges are the same since the subscription is monthly though this may be costly to the student category (S 5).*

In conclusion, therefore, it can be argued that the reaction of the students towards e-learning was positive, but with the acknowledgement of some challenges.

During the knowledge phase, the students were asked if, through the use of Google Docs and WhatsApp for learning purposes, they acquired any knowledge, what kind of knowledge, and how the existing knowledge was boosted. One of the students agreed that new knowledge was acquired especially since it was his first time hearing of Google Docs, let alone using it and this knowledge was boosted through easy access to content posted on the class Google site, while another student asserted that whereas he knew about the apps, he simply advanced knowledge about them through practical use through the editing option,

> *I have been pleasantly surprised at how much some of these tools I have been taking for granted are helpful in learning. Before I know it, I will want to study using online methods only. This has been a relief, although I was sceptical about it at the beginning (S 1).*

To this student, Google Docs and WhatsApp usage were insightful and mind-blowing because they fostered critical analysis of academic material. Indeed, past researchers have argued that e-learning not only leads to the discovery of new knowledge but also boosts existing knowledge. In terms of behaviour, the learners were asked if they had acquired new skills as a result of e-learning and if they had used these skills elsewhere. This attracted responses that agreed that new skills were acquired, as one student admitted, "I have acquired deeper computer skills beyond just sending and receiving emails. But to tell the truth, I admit that I have not yet applied these skills elsewhere but hope to do so shortly" (S 5).

Another student admitted that he uses the e-learning tools at his workplace to critically analyse workplace team projects and Google Docs and WhatsApp groups, "e-learning leads to the acquisition of new skills in computer usage" (S 2). While another student asserted,

> *I have come to realise that this e-learning phenomenon saves time, and if it were applied to all our subjects, we would have completed the course outlines long ago and have extra time to do the assignments and even concentrate on our work demands. This indeed has been eye-opening. I feel that the discomforts of e-learning outweigh its benefits. I would rather spend money on internet bundles than have stress caused by worrying about failure to complete the planned learning (S 4).*

Regarding the results phase, the students were asked to show if Google Docs and WhatsApp were tools they would use in the future in other subjects and at their places of work, to gauge if they think these two tools are helpful in content coverage and the extent to which they think the tools were user friendly. In response, the students expressed that these tools could be in use in the future since they are time-saving, promote online collaboration, and went ahead to suggest that they should be used in all theoretical subjects in universities since they favour learners with a wide variety of choices and opportunities. They would also be useful in content coverage in teaching and user-friendly, as long as they owned a computer and an internet connection.

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One student asserted, “Of the two used e-learning tools, I find WhatsApp more user-friendly but less useful than Google Docs since the latter has advantages of collaboration and is a better platform for learning” (S 5).

DISCUSSION OF THE FINDINGS

In What Ways Can E-learning Improve Content Coverage?

Regarding this research question, it can be argued that blending E-learning with face-to-face sessions without a doubt increases the speed at which study topics are covered because the former acts as a catalyst and helps save time. For example, the Psycho analytic theory, which includes Sigmund Freud's ideas on personality, would normally take two lectures, that is, six hours. With the use of WhatsApp voice notes as a method of presentation and e-learning, it took just an hour to discuss the theory of personality and did not require face-to-face class sessions to do so, since the presenter did it in his own space and time at home and at night.

It was also noted that even the topics that were presented in class during the face-to-face sessions were hitherto posted into the class Google Doc Drive and this enabled the lecturer and fellow students to read in advance, conceptualise the content before the actual presentation and this saved time that would have been spent on questions and elaborations during the face to face topic presentations and discussions, as one student ably put it, “this blended learning has been like hitting two birds with one stone. Before you realise it, we have covered so much in half the anticipated time.” S 5. Therefore, this saved the class ample time, such that a lecture that would have taken three hours was covered in one and a half hours, hence creating time for other topics, and therefore achieving wider and quicker content coverage. It has been documented that e-learning is quicker, time-saving, and non-inconveniencing since students can study from any location (Sit *et al.,* 2004; Smyth *et al.,* 2011). However, this has been viewed by other researchers to imply that whereas e-learning may save time, it is a huge inconvenience to the learners' and lecturers' private time (Smyth *et al.,* 2011). This was true. For example, the presentation that was done on the analytical theory of personality did not attract the attention and participation of most of the learners mainly because this was time for personal use like sleep, dinner, and caring for the family, hence it was invasive on their private time.

What Challenges Does E-learning Pose?

One of the challenges that was encountered in the process of introducing and implementing e-learning integration into face-to-face lectures was the problem of attitude. This was the impression that the researcher got. According to Andersson (2008), indeed, attitude is a hindrance to successful e-learning integration in addition to issues of flexibility, access, and cognitive confidence. The students, though they were largely millennials and with a lot of exposure to computers and smartphones, had a discomfort about using them for learning purposes. Their expertise in computer and smartphone usage had to be painfully transferred from self-entertainment and socialisation to pedagogical usage, with lots of pain and resistance. Secondly, there was a challenge of a lack of personal computers for individual students. These were newly admitted students who had not yet been briefed about the necessity of owning personal computers, as one student asserted, “It became a must for all of us to own laptop computers if we were to effectively benefit from e-learning. Google Docs cannot be used effectively on smartphones. This made computers a necessity. This should have been earlier communicated by the university among the admission requirements so that we could know what extra expenses we were expected to incur” (S 1). Thirdly, the students did not seem to easily grasp and implement the practice of interacting and collaborating online using Google Docs and WhatsApp. They merely read the presentations on those sites but required a lot of encouragement from the lecturer to interact on the two platforms to enrich

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the content and their understanding. It was quite interesting to note that when the time for evaluation came and they discovered that research was being conducted on the practice of e-learning, they were hesitant and were in doubt whether this was for teaching and learning purposes or rather for research.

E-learning, at the time of this study, was not institutionalised at the faculty/school level although the university has an ICT policy, and hence if the lecturers chose to embed it within the existing traditional face-to-face methods, it had to become and stay as an individual initiative which the students could choose to reject or shun (Nicholas, 2008). As a result, e-learning infrastructure had not been put into place in universities (Twinomugisha *et al*., 2004), hence limited accessibility by students (Gunga & Rickettes, 2006) due to issues related to doing with limited bandwidth (Steiner *et al.,* 2005). Another challenge posed by e-learning in this particular study was limited accessibility to the internet and computers. As freshly admitted postgraduate students, they did not have laptop computers as yet, and the WiFi connection at the university was not reliable; hence, the technology related to do with technological hardware and broadband was problematic, as Shahmoradi *et al.* (2018) agree.

CONCLUSIONS AND RECOMMENDATIONS

From this research, it can be concluded that e-learning indeed is instrumental in speeding up content coverage but comes with challenges that are institutional, personal, and technical and which would hence require corresponding mitigations. As a recommendation, there is a need for universities to provide computers to graduate students or make them an admission requirement and establish virtual learning and facilities for students (Murray, 2005). The fear of e-learning, that is, technophobia (Song, 2002), by institutions, lecturers, and students could be addressed by acquiring a clear conceptualisation of what e-learning is and what it entails so that the fear of the "unknown" is banished. This could also be addressed through basic training of all involved stakeholders. Universities could also strengthen their internet broadband connectivity to provide each student with enough to achieve learning and invest in low-cost computers for all graduate students as part of the admission requirement, as is in most mushrooming private universities.

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