

Leveraging Moya^{MA}, WhatsApp and Online Discussion Forum to Support Students at an Open and Distance e-Learning University

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Abstract: This paper reports on a study that integrated two instant messaging applications (Moya Messenger App and WhatsApp) and a myUnisa's online discussion forum (ODF), and utilised them as tools to support student learning at an open and distance e-learning university in South Africa. The participants in this study were 41 undergraduate education students enrolled for an undergraduate English Studies module. Employing a case study research design, the study utilised voluntary sampling to select its participants, and set out to answer three research questions. Data were collected through the three afore-mentioned tools. To this effect, the study made the following observations. First, both the instructor and students were able to engage in asynchronous and synchronous scaffolding using Moya Messenger App. This included engaging in features of scaffolding such as orientation, coaching, conceptual scaffolding and meta-cognitive scaffolding, largely by the instructor. Second, the instructor used Moya Messenger App to engage in presence teaching, while students utilised it to engage in presence learning. Third, students utilised WhatsApp to produce short synchronous formal essays based on a compare and contrast essay writing activity. Fourth and last, students used myUnisa's ODF to produce meta-content reflective writing about the module.

Keywords: ODeL, online learning tools, mobile learning tools, Moya Messenger App WhatsApp, myUnisa's ODF

1. Introduction

The use of online and mobile learning tools to support students in an open and distance learning (ODL) context is one of the most vexed issues with which this sector of higher education (HE) continually has to grapple (Barnatt, 2001; Tait, 2014). This is even more so for an open and distance e-learning (ODEL) institution such as the University of South Africa (UNISA) (Baloyi, 2014; Chaka and Nkhobo, 2019a, 2021; Minnaar, 2011). Utilising online learning tools, or using mobile learning tools to support students in a face-to-face HE context is one thing, while employing either type of learning tools for the same purpose in an ODeL context is quite another.. But, what is indisputable across higher education institutions (HEIs) is that the usage of learning tools (online or mobile) is not an exclusive preserve of ODeL institutions alone, notwithstanding the fact that such tools should serve as the bedrock for deploying student support at these institutions (Ferreira and Venter, 2011; Tait, 2014).

Therefore, within the ecosystem of learning tools, integrating online and mobile learning tools for student support purposes in the ODeL arena is not only essential but also indispensable (Tait, 2014; Chaka and Nkhobo, 2021). Doing so is especially relevant in the era in which there is a plethora of learning tools or applications (apps) (Chaka and Nkhobo, 2021). To this effect, the idea of integrating online and mobile learning tools for the purpose of supporting students becomes even more crucial for an ODeL institution such as the University of South Africa (UNISA), which is a mega ODeL institution (Liebenberg, Chetty and Prinsloo, 2012) boasting students with diverse demographics drawn from various geographies. The manner in which these two sets of student support tools can be integrated at an ODeL level varies. Each set with its related tools can be used on its own, or tools from each set can be blended into either set. In addition, most online learning tools are often deployed on walled platforms such as learning management systems (Maboe, 2017; Ng'ambi et al., 2016), while most mobile learning tools are normally delivered from mobile devices as part of a bring your own device (BYOD) approach (Chaka, 2012; 2015a; 2015b; Farley, et al., 2015; Ng'ambi et al., 2016; Lillejord et al., 2018; Mathew and Ebeelloanya, 2016; Sung, Chang and Liu, 2016; Wang, Chen and Khan, 2014).

Which of the two deployment approaches serves ODeL student support better is a moot point, as each of them has its merits and demerits. For example, online student learning support tools offered within an LMS environment or within a virtual learning environment (VLE) are convenient since they are often provided as a fit-for-purpose suite of tools. However, more often than not, they are enclosed in university firewalls. Additionally, they may not be easily accessed from some of the mobile devices owned by students. Most

crucially, some of the tools proffered in a suite format may not necessarily be the ones preferred by students (Chaka, 2019b; Lillejord et al., 2018; Sung, Chang and Liu, 2016; Tait, 2014). This is likely to lead to low uptake, or to their being under-used by students (Maboe, 2017). Similarly, mobile student learning support tools are convenient for students to use as they are generic and mostly purpose-built for mobile devices. Nonetheless, they are often offered as silos in the form of freemiums, premiums, or few-day trial versions (Ahalt and Fecho, 2015; TeachThought Staff, 2018). Those offered as freemium or trial versions tend not to have all the requisite features and functionalities common in premium versions. By contrast, those available as premium versions tend to be paid for and, thus, are unaffordable to some students. In fact, in a world in which social media technologies together with attendant over-the-top technologies (OTTs) seem to be incrementally colonising students' lifestyles, ODeL institutions will find it difficult to convince their younger students to continue using LMS-driven learning tools. This is particularly so since, as argued by Luskin (2016), OTTs, powered by social media, facilitate online, distance and blended learning a lot more easily and much more seamlessly and conveniently. So, the current study contends that OTTs are better than traditional IT-backed learning tools powered by LMS. Three cases in point are WhatsApp, Twitter and Moya Messenger App (henceforth Moya) which are OTTs with a multi-purpose teaching and learning potential.

Given that no deployment approach to offering student learning support tools is devoid of shortcomings, the current study employs a hybrid approach to student support. This approach integrates two mobile learning tools with an online learning tool deployed on and embedded in UNISA's LMS, myUnisa. The latter is part of UNISA's overall ODeL offerings. The two mobile learning tools are Moya and WhatsApp (see Figure 1), while the online tool in question is a myUnisa's online discussion forum (hereafter myUnisa's ODF)..

2. Statement of the problem

The Department of English Studies at UNISA is housed in the School of Arts and falls under the College of Human Sciences. It is part of UNISA's open and distance e-learning (ODeL) framework. In terms of registered undergraduate student enrolment figures, it is the largest department in this college (faculty). Most of the undergraduate students enrolled in this department are education students registered in an academic programme such as a Bachelor of Education (B. Ed) programme, which is offered by the College of Education. To this effect, the department offers a number of undergraduate modules to these students (Chaka and Nkhobo, 2019a). Over the last three years, the department has been providing face-to-face student support classes to students enrolled in some of their undergraduate modules. Owing to time constraints, the face-to-face student support classes offered to these students is restricted to certain designated days such as Saturdays or particular week days during school holidays. These designated student support classes fall under a special project (the Mathew Goniwe Project) housed in the College of Education (Chaka and Nkhobo, 2021). Outside these designated face-to-face student support days, students can be offered support via myUnisa, which is UNISA's legacy LMS. myUnisa, like many other LMSs (Ahalt and Fecho, 2015; Chaka, 2020; Chaka and Nkhobo, 2021; Mayanja, Tibaingana and Birevu, 2019), has an online discussion forum (ODF) tool embedded in it as part of its online suite of tools. This ODF, like most that are embedded in LMSs, has its own vital affordance that can be tapped into such as asynchronous interaction and responses. These asynchronous interaction and responses play a pivotal role in respect of support offered to students.

In 2018, one of the authors of the current paper offered, as an instructor, face-to-face student support classes to a group of undergraduate education students enrolled in one of the second-level modules. The classes took place on certain designated Saturdays and involved six intensive hours of teaching. Outside the designated Saturdays, students were provided additional support pertaining to some aspects of the module content on the myUnisa-powered ODF. This entailed asynchronous interact and responses on the part of students, and asynchronous scaffolding and feedback on the part of the instructor. Nevertheless, it soon became clear that the asynchronicity of responses, scaffolding and feedback that characterised this ODF, had some drawbacks. Some of these drawbacks were: delayed responses and lack of spontaneous online presence on the part of students; delayed scaffolding and feedback, and lack of spontaneous online presence on the part of the instructor; and the inconvenience associated with accessing myUnisa's ODF on the small screens of students' mobile phones. In order to compensate for these shortcomings, both Moya and WhatsApp were utilised. On the one hand, this was done with a view to enhancing student online response, online interaction and online presence. On the other hand, this was done to enrich instructor online scaffolding, online feedback and online presence. That is, the cardinal aim was to bring an element of spontaneity and near-synchronicity to the student support ecosystem which is often missing on myUnisa's ODF.

3. Theoretical framing

This study situates its debate within an integrated theoretical framework. This framework comprises mobility from the acronym M-COPE (mobile, conditions, outcomes, pedagogy and ethics) (Dennen and Hao, 2014; Lillejord et al., 2018); presence teaching and presence learning (Chaka, 2015a); and connectivism (del Valle García Carreño, 2014; Downes, 2010; Kop and Hill, 2008; Siemens, 2005; Thomas and Gelan, 2018). In brief, as used in this study, this framework refers to learning mediated through mobility, presence teaching, presence learning, and connectivism. This is the learning in which students and lecturers leverage mobile devices and mobile applications (mobility). As pointed out above, the study borrows the concept of mobility from mobile as encapsulated in Dennen and Hao's (2014) acronym, M-COPE. Dennen and Hao (2014) distinguish between learning activities that are mobile by design and necessity, and those that are mobile by circumstance. The former occur on mobile devices, but may as well occur in any other technology; the latter exploit the distinctive qualities and tools related to mobility, location (especially geo-location), and the functionality offered by mobile devices. The main differentiator in all this is the value (affordance) that a mobile device brings to a learning context. Examples of this learning value can be the fact that a given mobile device serves as a cognitive tool or offers new forms of interactions. In this case, some learning activities are mobile-dependent, whereas others are mobile-supported or mobile-enhanced (Dennen and Hao (2014). For the current study, mobility is employed in the sense of facilitating mobile-dependent and mobile-enhancing learning activities. This sense eschews the mobile-dependence and mobile-enhancement binarism.

The framework also uses mobility in the sense espoused by Chaka (2012). This sense of mobility encompasses qualities such as ubiquity, pervasiveness, portability, connectivity and flexibility (Sung, Chang and Liu, 2016) within a consumerisation of information technology (IT) environment. The latter refers to a situation in which personal consumer-grade mobile devices (e.g., mobile phones and tablets) are adopted and used by students for educational purposes to complement the existing educational IT tools such as an LMS. This is also analogous to employees would their adopting and using their own mobile devices for workplace purposes to supplement enterprise IT tools. This approach to using personal mobile devices is also known as bring your own device (BYOD) (Chaka, 2012). In the present study, students' use of their own mobile phones and applications like Moya and WhatsApp as part of learning support represents tapping into mobility within an IT consumerisation environment for educational purposes.

Furthermore, the types of teaching and learning envisaged in this framework are presence teaching and presence learning as theorised by Chaka (2014, 2015a, 2015b). Briefly stated, presence teaching is teaching that enables an instructor's digital presence in a digital tool or application used for teaching purposes. In the same vein, presence learning is learning that allows for a student's digital presence in a digital tool or application used for learning purposes. Three types of online presence are relevant here: social presence, co-presence and tele-presence. The first type of presence is about a symmetrically mutual relationship between participants that requires their co-location (Chaka, 2015a; Oh, Bailenson and Welch, 2018). Roy, 2007). The second type of presence has to do with the mutual awareness participants have of each other online (Chaka, 2015a; Oh, Bailenson and Welch., 2018; Resta and Laferrière, 2007), while tele-presence refers to the degree to which a student feels present in a digitally mediated environment (Chaka, 2015a; Oh, Bailenson and Welch, 2018). In the case of this study, tools that can be used to mediate online presence are Moya and WhatsApp as powered by mobile phones.

The last aspect of this integrated framework is connectivism. Connectivism refers to a digital environment in which virtually dispersed and distributed parts such as machines, mobile devices (e.g., mobile phones), mobile applications (e.g., instant mobile messengers), and people are remotely and seamlessly connected digitally for a given purpose (e.g., communicating, social networking, learning, teaching, etc.) (del Valle García Carreño, 2014; Downes, 2010; Kop and Hill, 2008; Siemens, 2005; Thomas and Gelan, 2018). In the main, it assumes learning is distributed between three pillars: the instructor, the learner, and the network (Crosslin, 2016; Kop and Hill, 2008; Tait, 2014). With regard to this study, the instructor, students, mobile phones, Moya and WhatsApp serve as instances of connectivism.

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tool in question is a myUnisa's ODF (see Figure 1). The two mobile tools, which are privately owned consumer applications freely available to users.



Figure 1: A screenshot of Moya Messenger App, WhatsApp and myUnisa.

4. Related literature

This section, which is not a traditional literature review, provides fit-for-purpose aspects of literature that are related to and relevant for the paper. It is structured into two sub-sections: digital shift; and student learning support and scaffolding in an open and distance e-learning context.

4.1 Digital shift

The phrase, digital shift, is used here in its generic sense to refer to use of digital and emerging technologies for student support in open and distance learning (ODL). In this sense, it embodies, especially within the ODL context, a shift from the use of traditional technologies such as telephone and radio which characterised the old form of ODL, to the use and adoption of digital and emerging technologies in the ODL arena. This usage does not foreground the different digital revolutions and historical trajectories often associated with the digital age as such aspects are not the focus of this study (Barnatt, 2001; Chaka, 2019a, 2019b; Tait, 2014). Tait (2014) cites print, text, electricity, transport and radio as examples of technologies that dominated the old form of ODL, which was correspondence or first generation ODL. In its older form, ODL had student support offered by, mediated through and confined to some of these technologies (Ferreira and Venter, 2011; Tait, 2014). Within this old ODL ecosystem, the advent of electronic mail (e-mail) and electronic learning (e-learning) was a momentous event (Chaka, 2010). The latter (e-learning) and LMSs, the paper argues, became disruptive technologies for deploying ODL. Therefore, the observation of this paper is that e-learning remains one of the key teaching and learning deployment tools on which the educational IT infrastructure of UNISA as an ODeL is founded.

The advent of digital technologies in the sense used in this paper has seen ODL enter a new era of student support with digital and emerging technologies become disruptors in the ODL ecosystem in a manner similar to a disruptive and game-changing role played by semio-technologies in digitally mediated literacies. These digital and emerging technologies include but are not restricted to instant messengers (e.g., WhatsApp and Moya), microblogging applications (e.g., Twitter), social networking sites (e.g., Facebook), video sharing tools (e.g., YouTube), (Chaka, 2019b; Resta and Laferrière, 2007), and video-conferencing tools (e.g., Zoom and Microsoft Teams). In the ODL context, and especially for second and third generation ODL (Tait, 2014), digital and emerging technologies, the paper argues, hold the potential to facilitate and mediate student support in a manner that is not possible when traditional and standard technologies such as LMSs and online discussion forums (ODFs) embedded in them are employed alone.

4.2 Student support and scaffolding in an open and distance e-learning context

The expressions student support, learner support and learning support are often used interchangeably in most ODL literature (Brindley, Walti and Zawacki-Richter, 2008; Baloyi, 2014; Minnaar, 2011). However, in this paper student support is a preferred expression as it aptly captures the types of students being investigated here: they are ODeL university students some of whom are working. This is despite the fact that the term learner has a generic usage, and signifies an active and instrumental role that a learner plays in the learning process (Brindley et al., 2008). Thus, it is ODeL student support as situated within the theoretical framing presented above that is foregrounded in this paper. In the ODL context, student support is defined differently. One definition espoused by this paper is that student support entails interactive educational activities and services aimed at supporting and enhancing a learning process. Subsumed in this definition are aspects such as teaching, tutoring, feedback and advising. The other aspects included in this definition are administrative support, counselling, guidance, welfare, and admission and registration (Brindley and Paul, 2008; Brindley et al., 2008; Baloyi, 2014; Ryan, 2008; Simpson, 2002; Thorpe, 2002). Two dimensions of student support are evident from this definition: academic student support and administrative student support (Zawacki-Richter, 2008). While these two dimensions are equally important as they complement each other in the overall student support ecosystem, it is the former dimension of student support that this paper sets out to explore. The focus of this student support is on an undergraduate module offered to a group of undergraduate education students by the Department of English Studies at UNISA. This student support pertains to some of the aspects of the module content in terms of scaffolding and feedback.

There are three cardinal functions served by student support in ODL: cognitive, affective and systemic functions. The first function is about fostering learning by mediating it through course materials and learning resources; the second one entails providing an environment that supports and enhances learner self-esteem; and the third function relates to implementing administrative and information management systems that are transparent, efficient and student-centred (Brindley and Paul, 2008). It is the first function that forms part of the focus of this paper.

The second area of focus in this section of the paper is scaffolding within an ODeL context. Like student support, the term scaffolding is defined multiply not only within ODL, but across the teaching and learning spectrum (Puntambekar and Hübscher, 2005; Resta and Laferrière, 2007). In educational circles, scaffolding is credited to Wood, Bruner and Ross (1976) even though it is also linked to Vygotsky's (1978) metaphorical concept of the zone of proximal development (McLoughlin, 2002). The latter is part of Vygotsky's (1978) social development theory, which refers to the space in which a student can learn on their own (self-learning) and in which they can learn through the assistance of a teacher (Chaiklin, 2003; Ludwig-Hardman and Dunlap, 2003; Wertsch, 1984). In this paper, scaffolding is used to refer to the support offered to a student with regard to a learning activity with a view to helping the student to successfully engage with the learning activity. Such a support involves interactions between an instructor and a student, instructor-led discussions, peer interactions, and hints and prompts provided on technologies intended to offer support student learning (Puntambekar and Hübscher, 2005; Resta and Laferrière, 2007; Wood, Bruner and Ross, 1976). This is an evolved and modified version of the scaffolding construct that resonates with fifth generation ODL (Ferreira and Venter, 2011) as one of the salient features of the latter is digital and emerging technologies.

McLoughlin (2002) identifies several dimensions applicable to different teaching and learning settings within ODL. These are as follows:

- Orientation (communication of expectation) – Providing students with a clear explanation of what they are expected to achieve
- Coaching – Offering students support through software applications to facilitate task performance
- Eliciting articulation – Encouraging articulation so as to help students express existing understanding and reflection (e.g., peer communication posted on a ODF)
- Task support – Creating support structures that enable students to perform a task (e.g., resources that enable engagement with task or activity)
- Expert regulation – Provision of support based on instructor or mentor expertise
- Conceptual scaffolding – Support offered when the task or activity is presented so as to help focus students on the problem at hand in the midst of multiple interpretations
- Meta-cognitive scaffolding – Type of scaffolding given by a cognitive tool (e.g., an electronic device) to enable students to express their thinking while engaging with the task

- Procedural scaffolding – Type of scaffolding intended to support in using available resources and tools (e.g., online resource sharing or online collaborative learning)
- Strategic scaffolding – Type of scaffolding provided to signal alternative learning pathways or courses of action related to the task at hand (e.g., multiple perspectives or multiple scenarios to the task) (Puntambekar and Hübscher, 2005; Zawacki-Richter, 2008).

In contrast, Puntambekar and Hübscher (2005) identifies four features of scaffolding. These features, as modified for the purpose of this paper, are as follows:

- Scaffolder – Assistance or expertise offered to the student by an instructor or a peer, or through technology (mobile or online resources and tools)
- Shared understanding – Providing shared common knowledge about authentic tasks embodied in a learning environment
- Ongoing diagnosis and calibrated support – Ongoing diagnosis by an instructor, a peer or a tool, including blanket scaffolding to all students or a differentiated scaffolding to individual students
- Fading – Support can be withdrawn, or can be permanent and stable

The current study intends exploring the dimensions and features of scaffolding mentioned above in varying degrees. A crucial point to note here is that the notion of scaffolding has been contested and problematised by certain scholars, especially in its simplistic and blanket application. One such scholar is Palinscar (1998) who raised the point that applying scaffolding atheoretically is problematic. To this end, she called on scholars to re-situate scaffolding within its theoretical framework, consider instances in which activities and circumstances scaffold learning, and investigate the link between scaffolding and teaching (Puntambekar and Hübscher, 2005). The current study aligns itself with this observation. To this end, it situates its investigation of scaffolding within the integrated theoretical framework it outlined earlier.

Mobile learning tools such as the two tools mentioned above, can be construed as push technologies as they enable servers to channel and direct information updates to web clients (Bassendowski and Petrucka, 2013; Spacey, 2017). In this sense, they allow students to be primed, taught and supported directly on their own mobile devices (Armatas, Holt and Rice, 2005) through a BYOD approach. Conversely, within the ODeL system as is the case with the rest of the HE ecosystem, LMSs such as myUnisa (together with its online discussion forum tool) operate as pull technologies intended to pull students to these online platforms through requests made by web clients to servers in a traditional client/server architecture (Bassendowski and Petrucka, 2013; Spacey, 2017). As pointed out above, this study integrates two push technologies (e.g., Moya and WhatsApp) with one pull technology (e.g., myUnisa's ODF) as part of its hybrid tools to support students enrolled for an English Studies module at UNISA. To this end, the study is informed by the following research questions (RQs):

- RQ1 – What are the benefits of integrating Moya Messenger App and WhatsApp as push technologies with myUnisa's ODF (an online discussion forum) as a pull technology to support students enrolled for an English Studies module?
- RQ2 – How do these three learning support tools facilitate student support in this module?
- RQ3 – Which of these tools are readily embraced as a learning support tool by students?

5. Research methodology

This study is grounded in an interpretivist research paradigm. Research based on this paradigm often yields copious, contextual, but substantially unregulated, unpredictable data (Mason, 2002; Ponelis 2015). As a corollary, a case study research design was deemed to be an appropriate research design for the current study. A case study research design is intended to examine contemporary phenomena as embedded in real-life contexts, especially when boundaries between such phenomena and their contexts are not clearly manifest (Yin, 2014). It is also a research design requiring multiple sources of data and a resultant triangulation of datasets. This research design may encompass a single case or multiple cases, and may include qualitative and quantitative data (Harrison et al., 2017). Moreover, a case study research design draws strengths from prior theoretical propositions for data collection and data analysis. To this end, it is not merely a data collection technique or a design plan, but an all-encompassing research strategy. There are certain purposes that case studies serve. These are to: (a) explore situations in which interventions being evaluated have single clear-cut outcomes; (b) describe interventions in real-life contexts in which such interventions occur, or the sequence in which they occur; (c) illustrate particular topics in a given evaluation by employing a descriptive mode; (d) explain

correlations in real-life interventions; (e) meta-evaluate other evaluation studies (Yin, 2014; Griffiee, 2012; Stake, 2005; Thomas and Myers, 2015). In this instance, it can enhance theory testing and theory building (Yin, 2014).

5.1 Participants and sampling techniques

Participants for this case study comprised 41 undergraduate students enrolled for a second-level English Studies module at UNISA. This module is a semester module, one of the outcomes of which is to analyse and interpret the structure of language as reflected in selected texts drawn from different genres. All of the participants had registered for a Bachelor of Education (B.Ed.) degree: Foundation Phase, and were from diverse language backgrounds and from different geographic locations across South Africa. Forty of these participants were females and one was a male. Collectively, their average age, based on their module registration data, was 38 years (SD = 2.2). All of these students were allocated to the instructor by the Mathew Goniwe project which was responsible for a special learning support programme that run on designated Saturdays in the second semester of 2018. Besides, most of the participants enrolled in this module were prospective educators for early childhood education which traditionally attracts more female educators than male educators. This is one of the factors that accounted for one male student who had registered for this module.

A sampling technique employed to sample these participants was volunteer sampling. Briefly stated, this technique entails self-selection – participants selecting themselves; or volunteer participation – participants volunteering to be part of a given study project. Often participants are requested to volunteer to partake in a study, or an announcement is advertised inviting volunteer participants (Omair, 2015; Sharma, 2017). Three benefits of volunteer sampling are: it is less time consuming and inexpensive; it allows a collecting of a lot of data with minimum personal effort (Alvi, 2016); and it enables easy access to appropriate units (cases) (Sharma, 2017). However, some of its drawbacks include the following: its findings are often not generalisable to other cases; it lacks representativeness and is prone to systematic errors (Omair, 2015; Rezigalla, 2020; Setia, 2016); and it is susceptible to bias (Sharma, 2017; Arinto, 2016; Benoot, Hannes and Bilsen, 2016; Etikan, Musa and Alkassim, 2015).

In the current study, 61 participants were requested to volunteer to take part in the research project through an email announcement that was sent to them before the onset of the project (Wood, Bruner and Ross, 1976). In the final analysis, 41 of them volunteered to participate in the study. This, then, is the manner in which participants for this study were sampled. But before all this took place, participants were informed about the study; their consent was sought; and ethical clearance was secured. The ethical clearance used was the one granted to a special project (the Mathew Goniwe Project) overseeing designated Saturday student support classes as mentioned earlier. It was granted by the College of Education's Research Ethics Review Committee at UNISA (Chaka and Nkhobo, 2019a).

5.2 Data collection process: Instruments, materials and procedure

There were three sets of data that were collected for the purpose of this study. All the data were collected over six days, from 26 October 2018 to 31 October 2018, as part of the participants' revision for their end-of-semester examination in the module in question. Students' participation in this exercise was optional, and the revision itself was meant to establish the manner in which the three tools employed for revision helped mediate learning support to those students who were willing to participate in this revision exercise. Therefore, the three datasets were garnered through three tools: Moya, WhatsApp and myUnisa's ODF. The first dataset consisted of the teacher's scaffolding and participants' synchronous responses to the scaffolding; the second dataset comprised samples of three-paragraph essays; and the third dataset was made up of participants' reflective comments.

As pointed out above, three learning support tools, Moya, WhatsApp and myUnisa's ODF were utilised as a combination of mobile push technologies and an online pull technology to collect data from participants. Firstly, participants were given a topic, "Compare and contrast the way that the writers use register, style and linguistic features to convey intention and reveal the genre of the texts" (see Figure 2), and two texts (Text B and Text C) on Moya (see Figure 4) on 26 October 2018. After that, the teacher engaged participants in real-time scaffolding about what they needed to know about and what they had to do in writing the essay task (see Figures 5 and 6). Secondly, a day later, participants were requested to write a three-paragraph "compare and contrast" essay on WhatsApp. Each of the three paragraphs had to be dedicated to an introduction, a body and a conclusion, respectively (see Figure 6). The essay's instructions and its other related aspects had been posted (real-time) on Moya a day before the due date. Thirdly, participants were asked to comment about and reflect on their

experiences of having partaken in a Moya scaffolding and of having written the essay on WhatsApp. They did this on *myUnisa's* ODF.

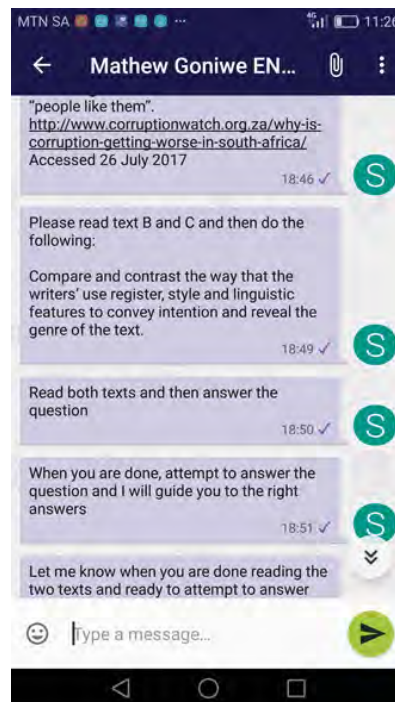


Figure 2: A screenshot of a topic given to participants on Moya

5.3 Data analysis

An analytic method used for analysing the data for this study was thematic analysis. This analytic method entails searching for themes emerging from and embedded in, especially though not exclusively, narrative data of phenomena investigated. It essentially involves identifying themes by carefully extracting them from the data, thereby making it a pattern recognition process in which themes emerging from the data become categories subjected to analysis (Fereday and Muir-Cochrane, 2006; Attride-Stirling, 2001). It may either be inductive or deductive depending on the choice made by the researcher. The data coding system follows specified steps. Codes are intended to capture the richness of themes embedded in the data. To this end, a theme is seen as a pattern in the data which, on the one hand, helps describe and organise the possible aspects of a phenomenon, and which, on the other hand, helps interpret crucial aspects of the phenomenon (Fereday and Muir-Cochrane, 2006; Attride-Stirling, 2001).

In the present study, thematic analysis was both inductive and deductive, and iterative and reflective. Inductive thematic analysis followed a step-by-step coding procedure, which even though entailed linearity as depicted in Figure 3, but was nonetheless iterative and reflective in its execution. This form of analysis was data-driven. Deductive thematic analysis was mounted as a priori approach responding to the aspects of the theoretical framework mentioned in the first section of this study. This dual approach was employed to ensure that the analysis was both data-driven and theory-responsive. The stages of the data coding system for inductive thematic analysis were as illustrated in Figure 4 below.

As shown in this figure, the data coding procedure used in this study consisted of 4 steps with their related sub-steps as outlined in this figure. These themes, together with the related theoretical constructs displayed under step 4, were created iteratively and revised constantly. Three raters coded the data using Cohen's kappa (κ). Cohen's κ is a common co-efficient used to measure inter-coder reliability (Cohen, 1960; Sun, 2011; Chaka, 2019a; Chaka, Lephala and Ngesi, 2017). The three raters' coding reliability was .80, which according to Cohen's κ value weightings (.00 to .1) is excellent (Cohen, 1960; Chaka, 2019a; Chaka et al., 2017).

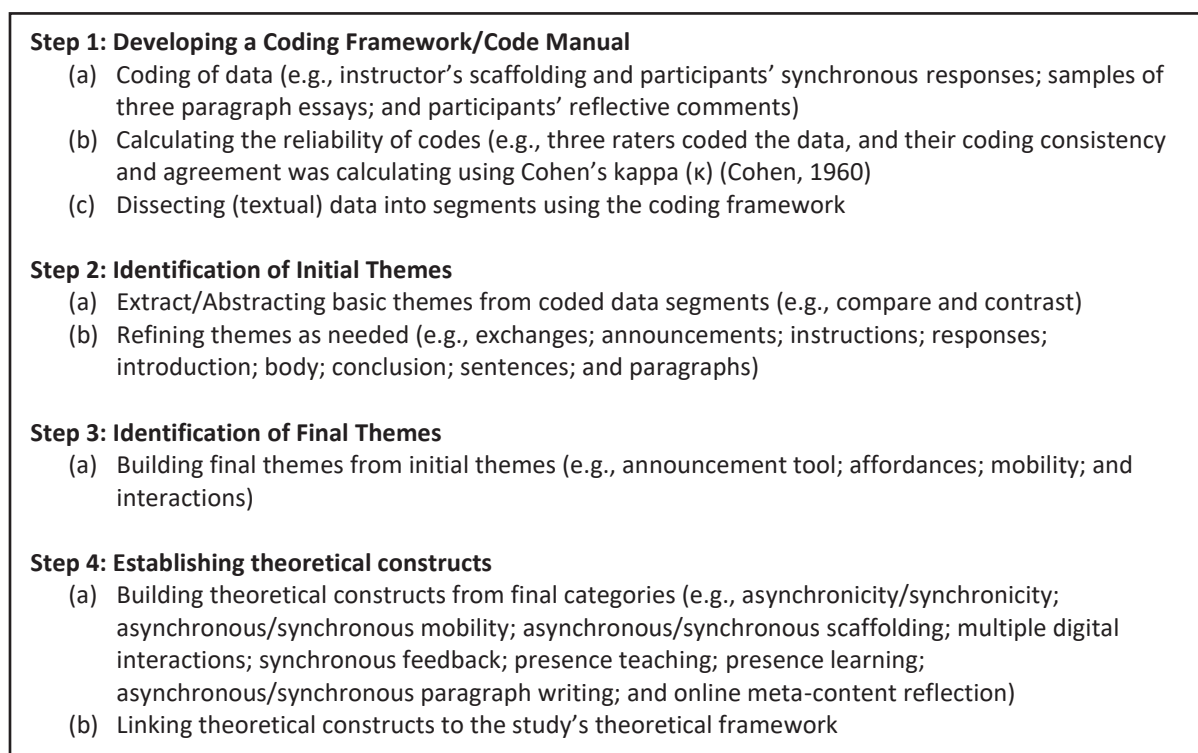


Figure 3: A diagrammatic representation of the stages of the data coding system (Adapted and modified from Attride-Stirling, 2001, p. 391 and Fereday and Muir-Cochrane, 2006, p. 5)

6. Findings

The findings presented in this section are informed by the three sources of data mentioned in the preceding section. In addition, these findings are in response to the research questions cited earlier and, as such, they are divided into sub-sections based on these research questions.

6.1 Moya

With reference to employing Moya as a learning support tool, a *compare* and *contrast* activity that participants had to do was announced on this instant messaging tool. This included two texts that were to be compared and contrasted (see Figure 4). The two texts were part of the May/June 2018 examination question paper for the module under study (again see Figure 4), and had been sourced from two Internet websites, a web address of one of which is shown in the right-hand side screenshot of this figure.

In respect of what was expected of the participants pertaining to this activity, Figure 5 displays the interaction in which one of the researchers (henceforth the teacher unless otherwise stated) had with some of the participants. This interaction was a follow-up to the announcement of the activity that the teacher made to participants (see Figure 2). As illustrated in these two figures, the activity required students to compare and contrast two texts (Text B and Text C) using the Moya, mobile platform. Figure 2 under the previous section displays a screenshot of the step-by-step instructions of the activity as posted on Moya by the teacher. These consist of the main instruction and its associated sub-instructions. The associated sub-instructions are explanatory in nature, with one of them guiding participants as to how they should respond, and with the other one informing participants to signal once they are ready with their responses.



Figure 4: Portions of both Text B and Text C as part of a *compare* and *contrast* activity



Figure 5: Greetings and prompts related to a *compare* and *contrast* activity on Moya

On this score, the left-hand part of Figure 5 depicts one of the participants greeting the teacher, to which the teacher duly reciprocates. The exchange immediately switches to the teacher’s introducing of the focus of the chat: the discussion of the differences between the Text B and Text C. The points he presents are framed as prompts in the form of leading questions) which are, in one instance, interposed by the participant’s response. The right-hand side screenshot of this figure features further prompts in the form of clarification of the activity by the teacher to the participant.

Similarly, Figure 6 provides a further clarification of the Moya *compare* and *contrast* activity. In fact, most of the information captured in the top part of the left-hand side of this figure is a rehash of the main instruction represented in Figure 2. So, while the main instruction in Figure 2 is framed in generic terms without any length specification, in Figure 5 (the left-hand part of this figure) the self-same main instruction has both a length specification (“three paragraphs of 5 lines each”) and the mode in which the activity should be presented (a

written essay). It also has three more prompts phrased as statements that serve to elaborate on the main instruction. The last prompt re-emphasises the expected length again. In this part of the figure, two participants engage in the exchange by a one-word response each. The right-hand part of this figure offers even more specific details about the activity. It furnishes (in parentheses) what aspect of an essay each paragraph needs to have and has to focus on.

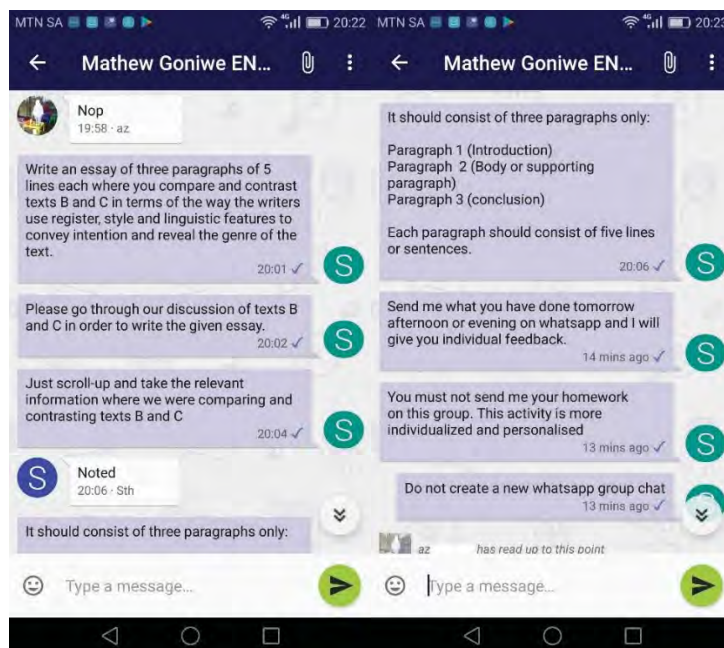


Figure 6: Further clarification of the Moya activity

Additionally, it re-states the number of lines or sentences each should have. This again, it does by not only rehashing a point mentioned in the main instruction showcased in the left-hand side screenshot of Figure 6, but also by providing an equivalent of lines: sentences. Moreover, the day at which and the period during which the activity has to be submitted are both supplied. To this end, the mobile platform (WhatsApp) on which the activity should be submitted is mentioned. At this point, participants are told that the activity is “individualized” and “personalised”. So, they are cautioned not to “create a new whatsapp group chat”.



Figure 7: An interaction between the lecturer and some of the participants with regard to the *compare* and *contrast* activity on Moya

In response to the teacher’s instructions for the *compare* and *contrast* activity that participants had to carry out on Moya as captured in Figures 2 and 5, part of the interaction which developed between the teacher and some

of the participants is as exemplified in Figure 7. This interaction starts off with one of the participants making everyone aware of the fact that she is the one who had been responding to Text C (on Moya), but that initially she “was lost” (see the left-hand side screenshot of this figure). One of the participants feels “sorry” for her, whereupon she apologises to the group (“So sorry guys”). The same screenshot indicates how far one of the participants “has read” this text: “phin... has read up to this point”. The middle screenshot displays how another participant engages in-depth with this text as per the instructions provided in Figures 2 and 56. She is joined in her response by another participant and by the teacher. But, much of the exchange on this screenshot is between her and the other participant.

In the right-hand side screenshot, the exchange is between the same participant who provided an in-depth response to Text C and the teacher. In this exchange, the former offers a motivation for her response, while the latter provides further prompts and commends both participants. Additionally, in the same screenshot, one participant’s (Zan) point at which she has read Text B is reported.

6.2 WhatsApp

Pertaining to the actual *compare* and *contrast* essay itself, which was supposed to be submitted on WhatsApp (see the right-hand side screenshot of Figure 6), samples of this essay are depicted in Figures 8, 9, 10 and 11. For example, all these four figures depict sample essays which follow the stipulated essay structure: introduction, body and conclusion.

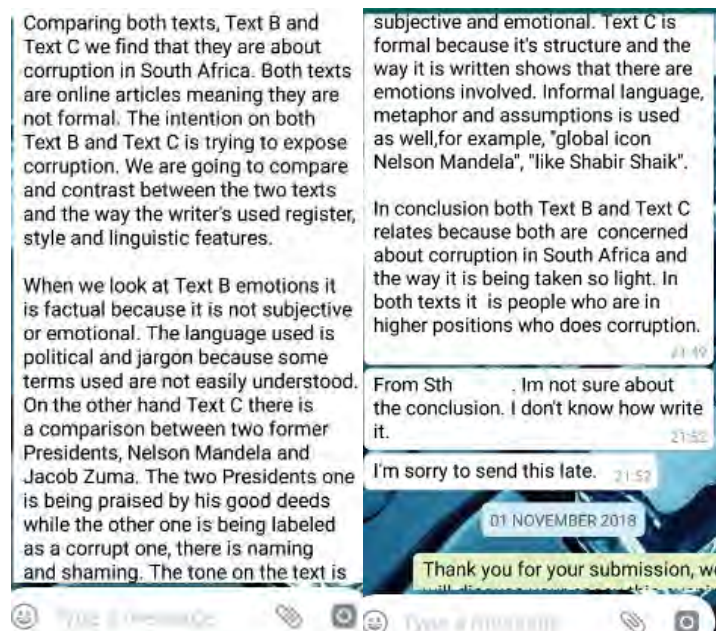


Figure 8: Sample essay 1

Each of these three sections of the essay had to constitute a paragraph consisting of five lines/sentences (see Figure 6). In this regard, each of these sample essays, as shown in Figures 8, 9, 10 and 11, had the following number of sentences in each of the three categories, respectively: Figure 8 = 3 paragraphs (4+7+2 = 13 sentences); Figure 9 = 4 paragraphs (2+4+5+1 = 12 sentences); Figure 10 = 3 paragraphs (6+7+2 = 15 sentences); and Figure 11 = 4 paragraphs (5+6+4+2 = 17 sentences). The total number of sentences for each paragraph and for each sample essay are in parentheses, and must be seen against the backdrop of 5 sentences each paragraph was supposed to have according to the essay instruction. These sample essays have a total word count of 229, 135, 240, and 333 words apiece, and a grand word count of 937 words collectively.

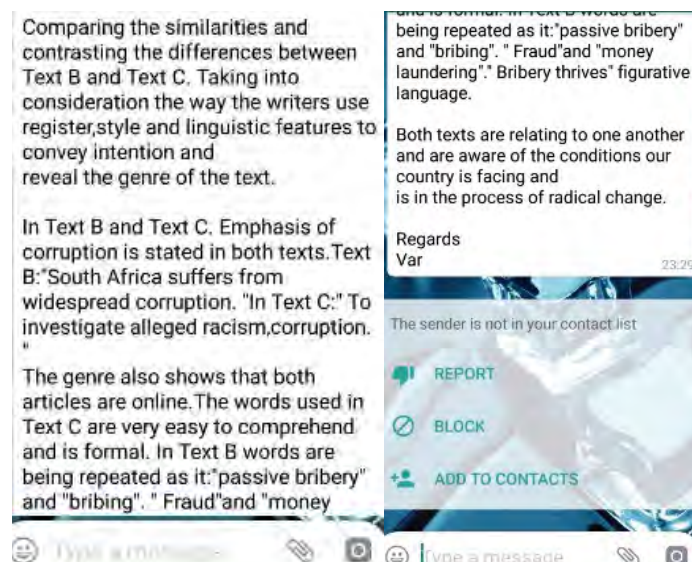


Figure 9: Sample essay 2

In terms of the core instruction, “compare and contrast the way that the writers use register, style and linguistic features to convey meaning and reveal the genre of the text” (see Figures 2 and 6), sample essay 1 in Figure 8 tends to provide largely a descriptive analysis of the two texts. Nonetheless, it has elements of comparing and contrasting. By contrast, sample essay 2 (see Figure 9) restates the exact wording used in the main instruction of the question in its introduction. However, it falls short of elaborating on each of the key words contained in the main instruction of the question in its two subsequent paragraphs, save that it provides words repeated in Text B in the third paragraph.

Two sample essays that attempt, to some extent, to respond to the “compare and contrast essay task according to its core instruction are sample essays 3 and 4 (see Figures 10 and 11). Both sample essays begin with introductory paragraphs that foreground some of the requirements of the core instruction in varying degrees. For instance, on the one hand, sample essay 3 prefaces its discussion by drawing the reader’s attention to “how language is used in context” and how writers “use specific discourse for different texts” when communicating a given purpose. On the other hand, sample essay 4 flags the common issue addressed by the two texts (Text B and Text C): “corruption in South Africa”. Subsequent paragraphs in each sample essay endeavor to respond to the question, particularly, by trying to demonstrate – again in varying degrees - how register and linguistic features have been used in each text to convey meaning.

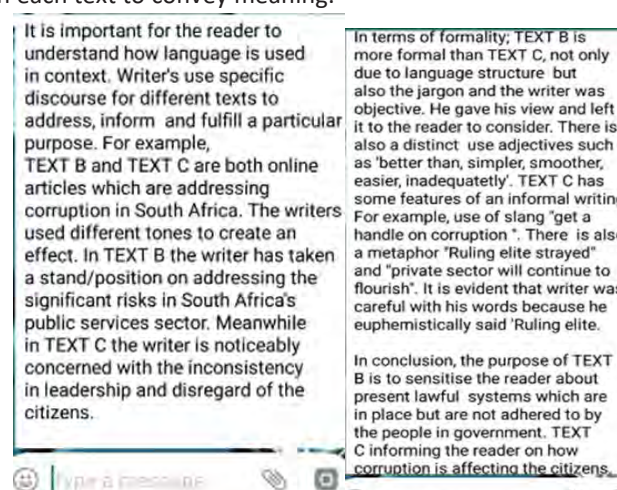


Figure 10: Sample essay 3

Both texts deal with the level of corruption in South Africa. Text B shows that even though the laws of the country are in place to combat corruption, the officials who are supposed to be enforcing these laws are the ones who are having problems enforcing them. On the other hand Text C shows that former president Nelson Mandela has set a good example (practicing what he was preaching). He was even prepared to stand in front of a commission that was investigating the alleged racism and corruption in rugby to show how opposed to corruption he was. But one of his successors, Jacob Zuma was notorious of his corrupt practices and corrupt associations with questionable individuals.

As Text B shows, though the system is put in place, which is a good thing, it has to do something with the law enforcers. They are the ones who do corruption by accepting bribes. It is using more of an informal communication. On the other hand Text C is more formal and factual as it also quotes the stats. For instance, it mentions a certain survey that shows that in 2012 there was a "10.8 % decrease in citizens' confidence in national government" because of what the law enforcers do. It also says "there has also been a 13% increase in the proportion of citizens who feel that the government does not care about them."

The jargon used in Text B is more technical and political mentioning like "Public procurement", and some other institutions, PCCA and ICS. Text C is simpler and easy to follow. It does not use a difficult jargon that may make it difficult for the lay reader to follow. Text B shows the writer's opinion, whereas Text C shows facts by naming and shaming specific individuals, for example.

It is clear from both texts that something needs to be done about corruption. This is particularly because it takes place in the higher ranks, negatively affecting those on the ground.

Figure 11: Sample essay 4

6.3 myUnisa's ODF

As pointed out earlier, in respect of myUnisa's ODF as a pull learning support tool, participants were asked to post on this tool their comments about their experiences of engaging with the essay task on Moyaand of writing this task on WhatsApp.

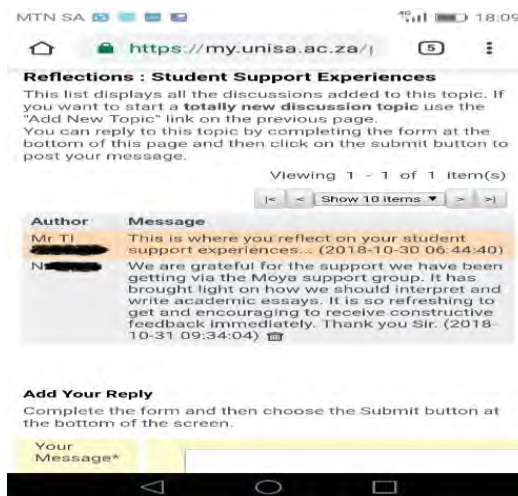


Figure 12: Sample discussion forum message

All participants were happy about the learning support provided to them. One such comment posted on myUnisa's ODF is displayed by Figure 12. Here one participant expresses her gratitude about such a support. She particularly singles out the Moyalearning support group, mentions how it has shed light to them about interpreting and writing an academic essay. To this end, the participant is of the view that it is "encouraging to receive constructive feedback immediately."

7. Discussion of findings

This section discusses the findings of the current study. The discussion is grounded on the findings as presented in the preceding section. In addition, this section is divided into the affordances each learning support tool offers. These affordances are discussed under a learning support tool through which they were both realised and

mediated. Moreover, the discussion of the findings is framed – together with the attendant affordances of the three learning support tools - in response to the three research questions (RQ1, RQ2 and RQ3) of the study.

7.1 Moya^{MA} and its affordances as a learning support tool

As described in the findings presented in the preceding section, there are a number of affordances (inherent utilitarian uses) that are offered by Moya as a student learning support tool. One of these affordances is an announcement tool. As illustrated by Figures 4, 5, 6 and 7 and as described in the preceding section, Moya was employed in this study as a mobile announcement tool. This affordance is mobile-enhancing in its asynchronous form and mobile-dependent in its synchronous form (Dennen and Hao, 2014). The second affordance which is functionally linked to the first one is mobility. As a tool, Moya enabled the teacher to tap into asynchronous mobility (see Figure 2). In this case, the instructor (S) posted the essay activity announcement live on Moya when all participants were offline, thereby leveraging the asynchronous mobility of this platform. But no sooner had he posted this announcement than one participant (G) logged onto Moya live (see Figure 4) to announce her presence online. This demonstrates that Moya also facilitated synchronous mobility not only between the instructor and this participant, but between him and other participants as well (see Figures 5 and 6). In this instance, this dual affordance underscores its mobile-enhancing and mobile-dependent functionality. This means that Moya also afforded the instructor and participants both asynchronous and synchronous mobility (Dennen and Hao, 2014; North-Samardzic, et al., 2014). To this end, North-Samardzic, et al. (2014) emphasise the complementarity of asynchronicity and synchronicity in virtual learning environments. The same argument holds for the ODeL environment as exemplified by Moya in the current study. Moreover, in this case, Moya tends to lend itself well as a digital and emerging technology that can be used for both BYOD and IT consumerisation purposes (Chaka, 2012) within a student learning support context.

Another affordance offered by Moya is scaffolding. The type of scaffolding mediated to participants through Moya and how participants were scaffolded using this instant mobile messenger application is shown by Figures 5, 6 and 7. For instance, the scaffolding displayed in these figures is enacted through multiple digital interactions. In Figures 5 and 6, for example, the scaffolding is initiated through a student/instructor interaction, even though it is more instructor-dominated. This, then, becomes an instructor-led discussion (Puntambekar and Hübscher, 2005; Resta and Laferrière, 2007) in which the instructor provides: orientation; coaching; eliciting articulation; expert regulation; conceptual scaffolding; cognitive scaffolding; and meta-cognitive scaffolding (McLoughlin, 2002). Three more scaffolding features based on Puntambekar and Hübscher (2005) are evident from the scaffolding interactions as depicted in these aforesaid figures. These are a scaffold exemplified by the instructor; a shared understanding related to the essay writing activity offered mainly by the instructor, and to some extent by students, especially student N; and an ongoing diagnosis provided largely by the instructor.

Similarly, the scaffolding in Figure 7 is mediated through a student/instructor interaction that is more student-dominated, resulting in a student-led discussion (Puntambekar and Hübscher, 2005; Wood, Bruner and Ross, 1976). In this interaction (which is largely dominated by N), N provides responses to the instructor's scaffolding as well as responding to student S (colour blue). The latter case exemplifies peer interaction which is often regarded as a necessary component of student learning support that helps reveal students' level of content matter understanding (Aghaee and Keller, 2016; Bond et al., 2020; Lai et al., 2019). So, here, student N, unlike preschoolers who often rely on the instructor's prompts and hints (Wood, Bruner and Ross, 1976), is able to lead a scaffolding discussion by responding to some aspects of the scaffolding and by engaging another student.

In addition, the scaffolding as exemplified in this figure is mediated through four more types of interaction: student/student interaction; student/content interaction; instructor/student interaction; and instructor/content interaction. This underlines the notion of multiple digital interactions embedded in this scaffolding. Emphasising the pivotal role played by scaffolding in computer-mediated learning, Laru (2012) contends that besides enhancing learning, the practice of scaffolding is increasingly becoming an indispensable ingredient in technology-rich environments. The current usage of Moya for scaffolding learning seems no different.

All of this scaffolding together with its concomitant types of interaction was mediated by Moya as an instant mobile messenger application. Therefore, in this case, Moya enabled the teacher and participants to engage in mobile scaffolding pertaining to the essay writing activity. This mobile scaffolding happened mainly synchronously (see Figures 5, 6 and 7), even though it was initiated asynchronously by the teacher. The value of synchronous interaction - and analogously of synchronous scaffolding - is highlighted by North-Samardzic et al.

(2014) who maintain that such synchronicity offers immediate feedback. With reference to this study, Moya afforded the teacher the opportunity to render instant scaffolding to participants. Most importantly, this instant scaffolding on itself own served as a virtual forum in which the teacher and participants engaged in meta-content issues related to one aspect of the module being studied, the *compare* and *contrast* essay writing. All of this underlines two elements of mobility - mobile-enhancement and mobile-dependence (Dennen and Hao, 2014; Sung, Chang and Liu, 2016) – that Moya adds to scaffolding as part of this BYOD and IT consumerisation student support environment.

A further affordance facilitated by Moya is presence teaching (Chaka, 2014, 2015a, 2015b). Figures 4, 5, 6 and 7 exemplify instances of presence teaching. For example, Figures 5 and 6 display instances of presence teaching in which the teacher has more digital presence than participants have. This is due to a scaffolding-cum-teaching that is teacher-dominated. Of course, it becomes a scaffolding-cum-learning for participants as they learn through reading and responding to what the teacher posts on Moya. Presence learning becomes even more profound in Figure 7 which portrays a scaffolding that is student-dominant. This presence teaching-presence co-occurrence facilitates and enables social presence, co-presence and tele-presence (Chaka, 2015a; Oh, Bailenson and Welch, 2018; Resta and Laferrière, 2007) between the instructor and students, on the one hand, and between students themselves, on the other hand. A key feature allied to both presence teaching and presence learning in connection with Moya is on-screen presence announcement and on-screen presence reading action tracking. An instance of on-screen presence announcement is “Ga ... is here” (see Figure 4), while examples of on-screen presence reading action tracking are messages, “az ... has read up to this point” and “Zan ... has read up to this point”, as depicted in Figures 6 and 7, respectively. Both presence announcement and presence reading action tracking are application-generated: they are programmatically generated by Moya. In this respect, Moya was employed as a platform to mediate presence teaching and presence learning, and to provide on-screen presence announcement and on-screen presence reading action tracking.

Intrinsically allied to presence teaching and presence learning is connectivism (del Valle García Carreño, 2014; Downes, 2010; Kop and Hill, 2008; Siemens, 2005; Thomas and Gelan, 2018). Through this connectivism, the teacher and participants were able to tap into mobility, scaffolding, presence teaching and presence learning (see Figures 2, 4, 5, 6 and 7) by utilising Moya. In a connectivist learning environment, power is dispersed within triple locations comprising instructors, learners and digital networks. Such power should oscillate between instructor-centredness and learner-centredness (Crosslin, 2016). In the present study, connectivist interactions are instructor-led; yet, there are others that are student-led.

Another intrinsic affordance provided by Moya is that it is both a push and an over-the-top (OTT) technology. As delineated earlier, this type of technology harvests information updates through servers and channels them directly to web clients (Bassendowski and Petrucka, 2013; Spacey, 2017). One instance of the push factor of Moya is demonstrated by the rapidity with which participant G’s digital presence is announced in Figure 4 within 2 seconds of the teacher’s being online. In all, these affordances are some of the benefits Moya as a push technology provided to support participants in this study.

The foregoing discussion demonstrates how in this study, the mobile tool, Moya, can be employed as a mobile platform to offer asynchronous affordances (e.g., announcements and scaffolding) in the same way as an LMS such as *myUnisa* (see Figure 1) and other LMSs can be employed (Chaka, 2015a; 2015b). However, as a push and OTT technology, Moya brings other benefits or value-adds to the ecosystem of affordances needed for supporting students. These are synchronicity, mobility, presence learning and connectivism as discussed above. All of these tend to compensate for the asynchronicity, and for the lack of mobility, presence learning and connectivism characterising an LMS such as *myUnisa*. These composite benefits, which are inherent in Moya as a push and OTT technology, are flagged up in this section as one part of the response to both RQ1 and RQ2 of this study.

7.2 WhatsApp as an instant mobile platform for essay writing

As is evident from sample essays presented in the findings section, participants were able to digitally and instantly produce *compare* and *contrast* essays of varying lengths and of differing word counts, sentences and paragraphs on WhatsApp. All of these differing aspects of sample essays ought to be seen against the backdrop of the essay instruction (3 paragraphs - a paragraph each on the introduction, on the body and on the conclusion - each of which was to consist of 5 lines/sentences) (see Figure 6). They also need to be viewed against the instant scaffolding that was provided on Moya prior to the essay writing activity. Of these sample essays, the

shortest had 135 words, 12 sentences and 4 paragraphs. In contrast, the longest had 333 words, 17 sentences and 4 paragraphs. Based on this, it becomes clear that in this study WhatsApp – as a social networking application - was utilised by participants as an instant mobile platform for essay writing. In particular, it lent itself well to being used as a mobile platform for synchronous essay writing. Elsewhere, Chaka (2014) reported the same observation that the now defunct South African-invented instant messenger, MXit, yielded with respect to synchronous paragraph writing (Chaka, 2015b).

Another aspect emerging from sample essays as presented in the findings section is that, in writing their essays on WhatsApp, participants used conventional sentences and followed conventional paragraphs (Chaka, 2015c; Thubakgale and Chaka, 2016) in keeping with both the essay instruction and the scaffolding (see Figures 8, 9, 10 and 11). To this effect, their sentences and paragraphs did not contain textisms (Chaka, 2015c; Thubakgale and Chaka, 2016) as would have been expected in an instant mobile messaging environment. This means that WhatsApp as a mobile social networking application – and as a push and OTT technology – enabled participants to write synchronous formal essays consisting of conventional sentences and conventional paragraphs that were textism-free.

A further feature observable from sample essays is that each essay contained an introduction, a body and a conclusion in line with both the essay instruction and the scaffolding provided. With reference to participants' responses to the core instruction of the essay task as captured in Figures 2 and 6, their sample essays were at polar opposites. For example, two of them did not respond according to the instruction (one provided a descriptive analysis, and the other restated the instruction, especially in its introduction, and failed to elaborate on key instruction words). The other two sample essays responded appropriately to the core instruction in varying degrees. This means that some participants were able to produce relevant essay responses through WhatsApp, while others were not. This is consistent with real-world, face-to-face teaching and learning scenarios in which some students may provide relevant responses, whereas others may not (Chaka, 2014, 2015c). It is also consonant with other online scenarios such as ODFs in which the two contrasting student responses may occur. Most importantly, the dual use of two instant messengers, Moya and WhatsApp, for engaging with students, tend to have provided the teacher and participants with the opportunity for not only a synchronous engagement with each other and with meta-content issues, but also for a dual synchronous interaction with each other and with meta-content aspects of the module under study.

Thus, all the points discussed above show that as a push and OTT technology (Bassendowski and Petrucka, 2013; Spacey, 2017), WhatsApp, especially as used in the current study, had a value-add of being an instant mobile platform for essay writing for the participants involved. In particular, this means it brings instantaneity and almost *real-timeness* to the type of writing in which participants engaged. These two value-adds are, in addition to mobility and connectivism, two key benefits that WhatsApp brings to the ecosystem of affordances which compensate for the affordances an LMS such as *myUnisa's* ODF tends to lack. Again, these composite benefits serve as another part of the response to both RQ1 and RQ2 of this study.

7.3 *myUnisa's* ODF as an online meta-content reflection forum

Participants used *myUnisa's* ODF – as requested by the instructor - to reflect on the scaffolding they received on Moya and on the essays they wrote on WhatsApp. Participants indicated that they liked the fact that they used these two instant messengers to write their essays. For them, Moya stood out as the tool that supported them well in writing the essay by means of the scaffolding that was provided on it. This is not entirely surprising as the scaffolding participants received on Moya was not only focused and intensive (see for example, Figure 6), but also synchronously interactive and engaging (see for instance, Figure 7). That is, it had synchronous interactivity and engagement for both the instructor and participants (Chaka, 2014, 2015b). The synchronicity and the interactivity and engagement of this scaffolding is underscored by the view expressed in Figure 12 that it was “encouraging to receive constructive feedback immediately.” Thus, *myUnisa's* ODF, as an asynchronous discussion forum, afforded participants the opportunity to comment (post the essay writing activity itself) on the essay they wrote about some of the aspects of the module, especially the *compare* and *contrast* aspect of essay writing of the module. In this sense, in this study, *myUnisa's* ODF served as an online asynchronous space in which participants reflected on some of the meta-content issues related to the module. The significance of asynchronous discussion forums in facilitating student reflexivity in online courses is highlighted by Chadha (2017) and Hew, Cheung and Ng (2010). Against this background, these are some of the benefits *myUnisa's* ODF as a push technology proffered to support participants in this study. Given student comments on *myUnisa's* ODF as discussed above, it appears that Moya is learning support tool that participants liked the most.

8. Limitations and recommendations

As mentioned earlier on, this study employed a case study research design. In this instance, it had 41 undergraduate students as its participants. These participants had been requested to select themselves through volunteer sampling as all the students enrolled for this module were on the verge of writing their 2018 end-of-year examination. On this basis, the sample used in this study is small for findings sourced from it to be universal and representative. However, the findings of a study such as this one are more beneficial for their contextual transferability and applicability than for their universal replicability and generalisability (Chaka, 2015b; Chaka and Nkhobo, 2019a).

Lastly, the current study was conducted over a short period of time. Future research needs to be conducted over an extended period of time. Most importantly, such future research requires to compare two groups of students using the same learning support tools for comparative purposes.

9. Conclusions

The three tools, Moya, WhatsApp and *myUnisa's* ODF, were used in this study as tools to support a group of students enrolled for an undergraduate module in their *compare* and *contrast* essay writing activity for different purposes in an ODeL context. In the course of their being used in this study, these three learning support tools provided various affordances to both the instructor and participants. For instance, Moya offered certain interrelated affordances. Firstly, it was employed as a mobile platform for announcing information pertaining to the *compare* and *contrast* essay writing activity in the same way as such an announcement can be made on a LMS like *myUnisa*. Secondly, this tool enabled both the instructor and participants to tap into asynchronous and synchronous mobility, what the study has also referred to as mobile-enhancing and mobile-dependent capacity of this tool. Thirdly, it served as a mobile platform for the instructor and participants to engage in an instant and synchronous scaffolding related to the *compare* and *contrast* essay writing activity. All of this entailed scaffolding features such as orientation, coaching, eliciting articulation, expert regulation, conceptual scaffolding, cognitive scaffolding, and meta-cognitive scaffolding which often characterise face-to-face teaching and learning encounters. Fourthly, as a mobile instant application, Moya facilitated presence teaching and presence learning in respect of the instructor and participants. To this end, this application offered on-screen presence announcement and on-screen presence reading action tracking of participants. Fifthly, Moya mediated connectivism between the instructor, participants, and their respective mobile phones. Allied to this affordance is the fact that Moya^{MA}, as a push and over-the-top (OTT) technology, harvested information updates about the *compare* and *contrast* essay writing activity (e.g., participants' digital presence) and pushed them to participants' mobile phones.

With reference to WhatsApp as an instant application, it was used in this study as an instant mobile platform for the *compare* and *contrast* essay writing activity. In this instance, it enabled participants to write synchronous formal essays consisting of conventional sentences and conventional paragraphs that were textism-free. When used in tandem with Moya^{MA}, WhatsApp afforded the instructor and participants the opportunity to have a dual synchronous interaction with each other and with meta-content aspects of the module investigated in this study.

In conclusion, *myUnisa's* ODF was employed in this study as an online meta-content reflection forum on which participants were asked to reflect on the scaffolding they received on Moya^{MA} and on the essays they wrote on WhatsApp. Overall, in this study, the three aforesaid learning tools were integrated for the purpose of supporting participants to engage in synchronous essay writing scaffolding and in instant essay writing. So, when taken together, these three learning support tools were utilised in this study to harness their affordances in a complementary and hybrid way.

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