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Students' perceptions of the Moodle Quiz E-assessment tool in an isiZulu language course

Abstract

MOODLE, a free open source software, is the official Learning Management System (LMS) at the University of KwaZulu-Natal (UKZN). The institution's mandate to all academics to integrate Moodle into their respective disciplines for teaching and learning, created a space for the researchers to experiment with the Quiz tool as an alternate assessment method, as part of routine formative and summative assessments. Whilst there are many research studies that endorse e-assessments at tertiary institutions, this is an uncharted area of research within the field of teaching and learning of isiZulu in South Africa. As a result, there is a lack of empirical evidence to assist with curriculum integration and implementation thereof. The purpose of this study was to explore

students' perceptions and experiences on such integration and implementation of e-assessments. A questionnaire was administered to sixty first year Bachelor of Medicine and Bachelor of Surgery (MBChB) students enrolled for isiZulu. Permission to conduct the research was sought from all relevant gatekeepers. This study is set against the behaviourist, cognitive and constructivist learning frameworks. Findings from this study affirmed the numerous benefits of including e-assessments as part of the assessment method. However, further improvements to the design of the isiZulu quiz e-test were suggested.

Keywords: e-assessment; second language isiZulu; student perceptions; Moodle; Learning Management Systems

1. Introduction and background

Technology in the twenty-first century has provided a space for innovative opportunities in learning and assessment environments. In higher education contexts, there has been rapid development in the integration of information and communication technologies (ICT) (Stöddberg, 2012). Assessments that use ICT are referred to as e-assessments, which undergo a similar design process to traditional assessment methods. However, the difference between the two types of assessment formats is that the e-assessment process uses ICT from the actual design of the task to archiving students' records. Whereas traditional methods use pen and paper without the use of any form of technology. E-assessments can also be used for the purposes of both formative and summative assessments. Whilst formative assessment is used for students' developmental purposes, to identify any weak areas and to improve on their performance, summative assessment, on the other hand, refers to the final grading of student learning (Crisp, 2011). Hence, e-assessment is viewed as an integral part in the educational context. The use of this technological advancement is present across many global and national university modules and subjects offered at schools and colleges, such as the various sciences and engineering courses. However, the integration of ICT in African languages is advancing at a very slow rate. At the University of KwaZulu Natal (UKZN), Durban South Africa, Moodle has been selected as the preferred choice of an LMS platform. The aim of integrating technology-driven teaching and learning was to encourage academics to explore and utilise the tools within the various disciplines. The mandatory phasing in of Moodle in 2015 is aligned to the current global trends in the higher education sector, which is progressively integrating technology across all disciplines taught at UKZN (UKZN, 2015). Anecdotal evidence and observations suggest that whilst some academics have explored the potential of Moodle, there remains a number of disciplines and academics who are yet to integrate Moodle within their teaching and learning environment. Although Moodle is now the official LMS at UKZN, some disciplines/modules are using the open learning site as a 'dumping ground' for lecture notes or for posting messages. The assessment tool, which is one of the features of Moodle, is under-utilised, especially in the teaching and learning of second language (L2) isiZulu. In the African languages discipline, L2 isiZulu is currently taught mainly via face-to-face interaction, and essentially all assessments are traditional paper-based methods of assessment, with very little technological intervention.

The integration of technology created an opportunity for the researchers to explore innovative assessment methods with Moodle; hence the implementation of the Quiz tool. The intention to implement the Quiz tool was to integrate some form of technology into a module that is predominantly taught, learnt and assessed using traditional methods. However, there are studies that report on the departure from traditional teaching methods and approaches towards new communicative methods. Studies by Maseko & Kaschula (2009); Ndimande-Hlongwa, Mazibuko, Gordon, (2010); Matthews (2013) and Ngcobo, Nkosi, Buthelezi & Ntuli (2014) have shown the essentialness of adopting a more communicative approach to L2 teaching and learning African languages. A study by Steenkamp (2009) has also indicated how the inclusion of computer-assisted language

learning (CALL) can be successfully integrated into the teaching and learning of L2 isiXhosa. Whilst these local studies explore new ways of teaching and learning African languages, none of them, however, investigate new methods in assessing, especially e-assessments. Assessment methods in L2 isiZulu have mostly used the traditional pen and paper format. The use of e-assessments in L2 isiZulu is relatively new and an untapped area. To the researchers' knowledge, there is a no existing empirical research to guide the integration and implementation of e-assessments within a L2 isiZulu syllabus structure.

Since the introduction of the compulsory isiZulu language requirement at UKZN in 2014 (UKZN, 2006), an increase in student enrolment has resulted in an increased workload for academics teaching this module. The main aim of implementing the Quiz tool was to assist academics with large groups of students by reducing their marking load, and keeping track of students' progress. The researchers experimented using the Quiz tool with first year Bachelor of Medicine and Bachelor of Surgery (MBChB) students registered for a second language IsiZulu, yearlong module. The Bachelor of Medicine and Bachelor of Surgery is a six-year medical training program leading towards an MBChB degree. The Quiz tool was initially implemented as self-assessments during the first semester of year one of the MBChB programme. The initial pilot stage of Moodle was to allow students to feel comfortable with the Quiz tool. Upon achieving this, the Quiz tool was then adopted as formative and summative assessments during the second semester of 2015. The authors embraced the technological opportunity to introduce e-assessments as formative and summative assessments, into the isiZulu module, in order to enhance the learning experience of first year medical students in a fun-based and interactive manner, whose core concern is learning medicine.

In order to understand the experiences of students and their engagement with e-assessments, it was important for the authors to reflect on this choice of assessment method and develop it further. It is for this reason that the authors believe that the perceptions of the students was essential to this study. Students' perceptions are considered as an important factor as it has implications on the design of a Quiz or e-assessment. It also has an effect when providing feedback to students (Mussawy, 2009). Thus, the overall objective of this study sought to elicit students' perceptions on the implementation of the Quiz tool for assessment purposes.

The aim of this study specifically addresses two main research questions, namely:

What are students' perceptions towards the adoption of e-assessments for formative and summative purposes, in terms of the following themes?

- Effective for learning second language isiZulu,
- User-friendliness,
- Immediate feedback,

- Reliability of MCQ type questions

This paper commences with a review of literature relating to the implementation of e-assessments, specifically the Quiz tool. Thereafter, the theoretical framework is outlined, wherein the behaviourist and constructivist theoretical paradigms are taken as its point of departure. The research design and methodology is then outlined, followed by the results and discussion. The paper concludes with the conclusions and limitations sections. Future research work is also suggested.

2. Literature review

Although integrating technology in the assessment process may not be a novel phenomenon, their possibilities associated with it can improve assessment practices and encourage thinking about how to intellectualize assessment in higher education (Stödberg, 2012: 602). The possibilities that come along with e-assessments are widely acknowledged in many studies. Much has been written about the successful implementation of e-assessments, highlighting the benefits of its integration in the educational context at tertiary institutions. Studies have shown that the implementation of e-assessment, particularly the Quiz tool, is a popular type of e-assessment amongst young 'digital natives' (Rudansky-Kloppers, De Metz, Cohen, Bester & Da Silva-Esclana, 2014; Eccles, Haigh, Richards, Mei & Choo, 2012). The Quiz tool is also viewed as enhancing positive learning in students (Sorensen, 2013; Cohen & Sasson, 2016). Part of its success lies in giving attention to students' perceptions, investigating what students think about e-assessments (Deramo, 2009), as well as engaging students in the enhancement of e-assessments (Holmes, 2015).

In addition, the Quiz tool is regarded as a reliable and valid type of assessment. It is viewed as an attractive software package with numerous benefits (Educational Testing Service, 2003). Some of the opportunities and advantages of e-assessments offered to educators, students and institutions include: designing assessments, analysing students' results, providing prompt and descriptive feedback to large numbers of students, as well as highlighting students' strengths and weaknesses through the use of formative e-assessments (Bañados, 2006; Meskill & Anthony, 2015). Students are able to receive an overall progress guide while educators can improve and transform current teaching patterns (Crisp, 2011). A further study suggests that quizzes are ideal platforms for large numbers of students (Rarh & Goel, 2011).

E-assessment is essentially an alternative to traditional methods of assessment. Pedagogical principles that relate to traditional methods of assessment would have to apply to e-assessments as well. In order for successful implementation of e-assessments, it is essential to align pedagogical considerations to the fast-paced changes in technology. Govindsamy (2001: 228) asserts that pedagogical principles must be fully integrated into LMSs, followed by specific guidelines on how to use its features in the most effective manner, that would subsequently lead to theoretically sound classroom delivery. LMSs like Moodle offer educators quiz templates, which

can be used to design formative and summative assessments. A well designed e-assessment should incorporate different types of questions, such as multiple choice questions (MCQs), true/false questions, short answer questions, matching, and comprehension quizzes based on a documentary or an audio (Govindasamy, 2001; Holmes, 2015; Rarh & Goel, 2011; Rudansky-Kloppers *et al.*, 2014). While there are some concerns regarding e-assessments, particularly MCQs not assessing students' cognitive skills and not providing a deeper learning experience, other studies suggest that well-formulated MCQs can have a positive impact on students' achievements, and motivate them in their learning process (Holmes, 2015). Moreover, it may assist memorization and exhibit higher order cognitive skills in students (Govindasamy, 2001).

The literature reviewed from a second language teaching and learning perspective raises similar concerns regarding the inclusion of technology, particularly the adoption of e-assessments in a language course. A study conducted by Moore and Iida (2010) reported on students' perception of supplementary, and online activities for Japanese language learning, using three different tools namely, Groupwork, Quiz, and discussion tools for the successful integration of technology in a language teaching context.

However, successful integration and implementation of e-assessments into a second language syllabus should be guided by established methodological and pedagogical principles teaching and learning (Nielson & González-Lloret, 2010). These authors provide useful guidelines that contribute towards effective second language learning. These include: providing input and opportunities for output and interaction, as well as supplying feedback. In terms of providing sufficient input, e-assessments can include different forms of input that can suit the needs and preferences of learners. Whilst input is required for language learning, output too, ensures that learners experiment with the language they are learning. Alongside input and output, e-assessments provide the ideal platform for effective feedback. Nielson and Gonzalez-Lloret (2010: 29) emphasize that one of the advantages of assessing through technology is that it provides students with immediate feedback. Receiving immediate feedback allows students to attend to their errors immediately so that they may analyse where they have erred, while it is fresh in their minds.

In addition to input, output and feedback, Nielson and Gonzalez-Lloret (2010) suggest considering several other important factors when opting to include e-assessments. These include an ease of access and navigation, technical support, potential for monitoring student use and incorporating different types of assessment. Although the implementation of e-assessments is seen as advantageous to educators, its disadvantages cannot be ignored. Some of the challenges noted include the logistics of setting up for large cohorts of students, venue, and security issues (Singh, 2015). Other challenges include the training of academics and students who are technologically challenged, or who are unfamiliar with the software system (Stockwell, 2012), who emphasises the importance of diversity of students, learning contexts, and institutions, among other factors that cannot be overlooked when integrating technology in teaching and learning. Changing the mind-set of the students to accept e-assessments as part

of formative and summative assessments could also be an uphill task.

The above research studies have provided sufficient evidence regarding the successful integration of e-assessments in an educational context. However, emerging from the reviewed literature, not much empirical evidence is generated to assist with curriculum integration and implementation in African languages. There is very little technological advancement that has been made within the teaching and learning of African languages. As mentioned above, there is nothing new about including technology in the assessment process but it is unique in African languages, as it has not been explored. This study contributes to the existing literature on e-assessments by providing new insights into how African languages such as isiZulu can be assessed using technology. To the best of the authors' knowledge, no documented study, which reflects the successful implementation of Moodle's Quiz tool as formative and summative e-assessments in isiZulu, has been documented. With this in mind, this study aims to investigate the potential benefits the Quiz tool may have on an isiZulu language course. Drawing on the perceptions of students, this study further describes an approach for the integration and implementation of e-assessments in a second language isiZulu module.

3. *Theoretical framework*

Alessi and Trollip (2000) identify the following relevant learning theories upon which CALL activities are based. One of the key principles to consider when adopting e-assessments in a second language include the behaviourist and structural views of language learning. CALL was based initially on the approaches of the behavioural and structural views of learning. E-Learning activities associated with CALL included grammar exercises and activities aimed at providing learners with opportunities for drill and repetition. This type of approach focused much on reinforcement, input and interaction in language learning. The cognitive approach was another learning theory, which was adopted into many CALL activities. Cognitive theories are largely based on memory, attitudes, motivation, thinking and process skills, reflection, and other internal processes. Other variables also include perception and attention, encoding, active learning, metacognition and individual differences – all of which are important in the designing and implementing of e-learning (Alessi & Trollip, 2000: 20). In other words, the various skills of listening, reading, vocabulary, and pronunciation, can be assessed through e-learning tools such as quizzes as it can be based on the above variables. Both the behaviourist and cognitive approaches include the principles of reinforcement, attention, perception, encoding, memory, comprehension, active learning, motivation, locus of control, mental models, metacognition, transfer of learning, individual differences, knowledge construction, situated learning and collaborative learning (Alessi & Trollip, 2000).

In addition to the behaviourist and cognitive approaches, constructivist principles encompass a wide range of views about learning in general. Much emphasis is placed on active learning, the use of relevant and authentic activities, and the promotion of learner autonomy, among others. The basic tenet of this approach is that knowledge is being

constructed and the central role of the learner in constructing meaning is emphasized (Alessi & Trollip, 2000: 32). Moreover, strong emphasis is placed on the learner involvement in both the learning process and in the tasks involving the computer (Levy & Stockwell, 2006; Stockwell, 2012). Several studies have also shown that students' engagement, needs and perceptions are essential when implementing e-assessments (Alessi & Trollip, 2000; Holmes, 2015; Rudansky-Kloppers *et al.*, 2014; Walker, Topping & Rodrigues, 2008). Ongoing engagement with students assists educators, as well as higher learning institutions, to improve the quality of e-assessments. In a similar study by Eccles *et al.* (2012), the authors highlighted the importance of considering the learners' viewpoint when introducing new technology into the educational practice. Although educational technology research may still be in its early stage of development, and there is not yet an existing body of knowledge on which to build assumptions, e-assessments are generally based on the following dimensions, such as affective factors, validity, practical issues, reliability, security, and learning and teaching pedagogy (Erben, Ban & Castaneda, 2008; Dermo, 2009).

Thus, the integration of CALL in the teaching and learning of isiZulu as a second language, particularly for the purposes of assessing, can be grounded against the behaviourist, cognitive, and constructivist-learning paradigms. It is within these two frameworks that technology can be used as a tool that enhances vocabulary retention, reinforces language and linguistic skills, and improves comprehension skills, as well as supports the production of knowledge within an isiZulu context. Moreover, by engaging students with such e-assessment tools and further exposure to technology, research supports that the learning process will be enhanced.

4. Research design and methodology

The aim of the study was to understand the students' experiences on formative and summative e-assessments, specifically their perceptions on the use of the Quiz tool in Moodle. According to Stockwell (2012: 3), learners' experiences and perceptions with using technology in their everyday lives will certainly affect their acceptance of technology in language learning, specifically e-assessments in the isiZulu module. The methodology used in this study was substantiated by second language methodological and pedagogic principles on teaching and learning. These principles are the foundations of effective e-assessments. This study was set against the approaches of behaviourist, cognitive, and constructivist approaches. Action research methodology was also followed in this study. Through a series of iterations over one year, the implementation of e-assessment was facilitated. Each iteration brought with it improvements to the process of conducting e-assessments.

The researcher involved in teaching the second language isiZulu module created both formative and summative e-quizzes and all first year medical students who are second language speakers of isiZulu enrolled for the isiZulu module, attempted the Quizzes. IsiZulu first-language academics moderated the content of the quizzes, as would be

the norm with traditional assessment methods. Sample questions and structure of the e-assessment administered are provided in Figures 1 to 4 below:

Section B: Fill in the blanks (10 marks)

Instructions to Section B - Fill in the blanks

- Students are required to provide the correct form of the **Future Tense**. Sentences appear in the Present Tense positive and negative. Provide the corresponding form in the Future Tense.
- Please ensure that spelling is accurate
- You have only 1 attempt to complete this quiz
- Before you click and submit your answers, ensure that you have answered all questions in Section B
- Once you have completed answering all questions, please ensure that you click on the finish and submit button
- **Isibonelo:**
 - Umama **udinga** umuthi - Umama uzodinga umuthi/Uzodinga umuthi
 - Unesi **akahloli** ugogo - Unesi akazuhlola ugogo/Akazuhlola ugogo

Attempts allowed: 1

Figure 1 Instructions provided on each question type

Question 1 Not yet answered Marked out of 1.00 Flag question Edit question	Indoda ayigcwalisi ifomu Answer: <input type="text"/>
Question 2 Not yet answered Marked out of 1.00 Flag question Edit question	Odokotela abasizi abantu Answer: <input type="text"/>
Question 3 Not yet answered Marked out of 1.00 Flag question Edit question	Baya emtholampilo kusasa Answer: <input type="text"/>

Figure 2 Translation questions

Started on	Thursday, 27 August 2015, 9:58 AM
State	Finished
Completed on	Thursday, 27 August 2015, 10:26 AM
Time taken	27 mins 44 secs
Grade	8.00 out of 10.00 (80%)

Question 1	Asenzi lokho			
Incorrect				
Mark 0.00 out of 1.00				
Edit question				
	Answer: Akazusenza lokho			
	The correct answer is: Asizukwenza lokho			
	Make comment or override mark			
Response history				
Step	Time	Action	State	Marks
1	27/08/15, 09:58	Started	Not yet answered	
2	27/08/15, 10:03	Saved: Akazusenza lokho	Answer saved	
3	27/08/15, 10:26	Attempt finished	Incorrect	0.00

Figure 3 Example of the automatic marking of an incorrect answer

Question 3	Isiguli sidla isobho			
Correct				
Mark 1.00 out of 1.00				
Edit question				
	Answer: Isiguli sizodla isobho			
	The correct answer is: Isiguli sizodla isobho			
	Make comment or override mark			
Response history				
Step	Time	Action	State	Marks
1	27/08/15, 09:58	Started	Not yet answered	
2	27/08/15, 10:03	Saved: Isiguli sizodla isobho	Answer saved	
3	27/08/15, 10:26	Attempt finished	Correct	1.00

Figure 4 Example of the automatic marking of a correct answer

The project was set in the Colleges of Humanities and Health Sciences, at UKZN, with one researcher providing the creative content design, and the other bringing the technological and e-assessment knowledge to this research. First year medical students from the Nelson R Mandela School of Medicine at UKZN, who are enrolled for the IsiZulu module, provided the sample. No exclusion criteria were imposed in this study. All sixty students were requested to complete the questionnaire after the last e-assessment session, to explore their experience of interaction with the Quiz e-assessment tool, compared to a traditional pen-and-paper based assessment. Fifty-five of the sixty students completed the questionnaire.

A mixed-methods approach to the research was adopted, with questionnaires being used for data collection. This questionnaire provided both quantitative and qualitative data. The questionnaire included structured questions related to biographical and study information, computer competency, prior exposure to e-assessment formats and open-ended questions on e-assessment experiences. Biographical information included gender and age whereas the study information included year of study and computer ownership. Initially, a five-point Likert rating scale ranging from strongly agree to strongly disagree was used to measure students' perception on the adoption of the e-assessment Quiz tool. The responses of strongly agree to strongly disagree were combined to represent an analysis showing agree, neutral and disagree responses, as shown in Table 1. This data was analysed using the SPSS® software to calculate the percentages of students' responses to the questions. At the end of this questionnaire, there was an opportunity for students to respond to open-ended questions. Data obtained from the open-ended questions were analysed thematically using an Excel spreadsheet.

Ethical permission to conduct the study was granted by UKZN Humanities and Social Sciences Research Ethics Committee (HSS/1167/015). This included gatekeepers consent and individual consent from participating students.

5. Findings

Fifty-five students participated in this study with thirty-five (63.6%) being male and twenty (36.4%) females. Only 18 per cent of the participants were over the age of twenty-one, all of whom were in their first year of study at Medical School. Fifty-four students, 98.2 per cent, were owners of some form of computer outside the University. Despite being computer owners, when asked to rate their competence levels at using a computer, only 60 per cent of the students felt confident that their computer literacy skills were 'Good'. The remaining 39 per cent felt they were average, while one student was unsure, as depicted in Figure 5 below.

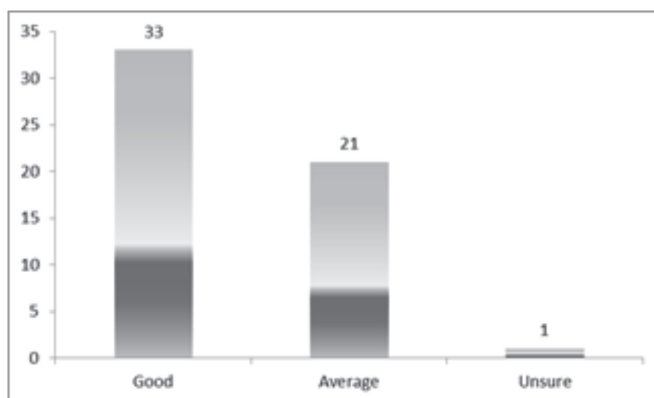


Figure 5 Computer Competency

Figure 6 below, illustrates student’s prior exposure to e-assessment. Only a small percentage of them (7.2%) actually interacted with the self-assessments, which were given to them on Moodle, on a regular basis – more than 3 hours per week. Majority of the students (54.5%) spent less than one hour per week on these self-assessments.

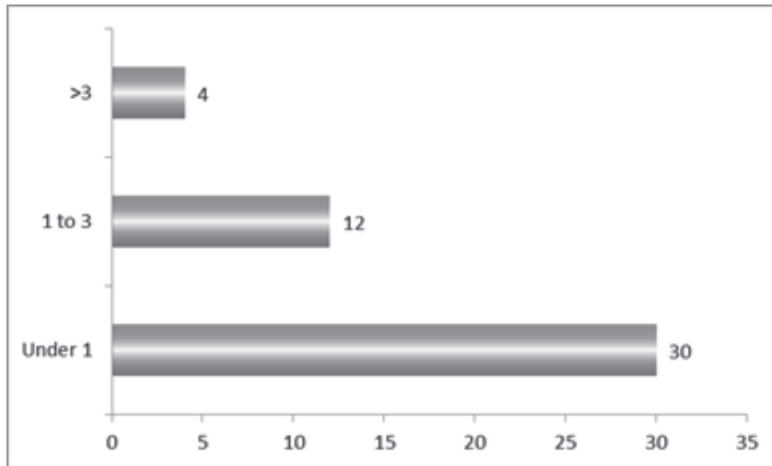


Figure 6 Prior exposure to e-assessment

Analysis of the student perceptions on the use of e-assessments for both summative and formative purposes are summarized in Table 1 below.

Table 1: Percentages of first year medical students in 2015 on using Moodle assessment tools (N=55)

STUDENT PERSPECTIVES	PERCENTAGES		
	AGREE	NEUTRAL	DISAGREE
Using a computer for the assessment task adds to the stress of the actual assessment.	9.1	21.8	69.1
I expect computers to be used as part of assessment at university.	74.6	20.0	5.4
I would feel more comfortable if the assessment were on paper, not electronic.	30.9	32.7	36.3
I find it hard to concentrate on the questions when doing an electronic assessment.	18.2	25.5	56.4
I would rather take an assessment on a computer than write it on paper, because I am used to working online.	41.8	21.8	36.4

Electronic assessment is appropriate for this module subject area.	63.6	20	12.7
This module content is too complex to be assessed with electronic assessment using multiple-choice questions.	16.3	9.1	72.8
Electronic assessment does not solely test my knowledge in this subject, but also tests my IT skills.	40	29.1	30.9
Electronic assessment has an important role to play in higher education.	81.8	12.7	1.8
Since you can guess an answer, electronic assessment using multiple-choice questions does not accurately reflect your level of knowledge.	25.5	30.9	41.8
Electronic assessments use less paper, which is important to me.	74.5	18.2	5.4
Technical problems make electronic assessment impractical.	45.5	32.7	21.9
There are serious health and safety issues with adopting electronic assessment exams.	9.1	30.9	60
Electronic assessment is more accessible than paper-based exams.	60	23.6	16.3
Marking is more accurate when using electronic assessment, because computers do not make errors, like human markers.	23.6	32.7	43.7
The technology used in electronic assessments is unreliable.	7.2	30.9	61.8
Electronic assessments favour some students more than others.	21.9	32.7	43.6
Paper-based exams are more fair than electronic assessments.	25.5	34.5	38.2
Randomised questions from a bank means that some students get easier questions than others.	32.7	36.4	29.1
Electronic assessment is just as secure as paper-based assessment.	45.5	34.5	18.2
I am confident that my marks for electronic assessments are secure.	56.4	27.3	14.5
It is easier to cheat during an electronic assessment than with paper-based assessments.	18.2	32.7	47.3
The electronic assessment system is vulnerable to hackers.	45.5	34.5	16.3

Username and password login provide adequate security for electronic assessment.	65.5	25.5	5.5
The potential for immediate feedback with electronic assessment can help me learn from my own mistakes.	85.5	9.1	3.6
Electronic assessment provides greater variety than paper-based exams.	43.6	32.7	21.8
Electronic assessment does not really benefit my learning.	7.3	18.2	72.7
Electronic assessment goes hand-in-hand with e-learning (e.g., using Moodle).	72.7	23.6	1.8
I found the electronic assessment tool easy to use.	87.3	9.1	1.8
Taking self-assessments on the same tool made me familiar with the interface prior to the summative assessment.	90.9	7.3	0
I needed guidance from the assistants on how to take the electronic assessment.	10.9	12.7	74.6
I required more time to complete the electronic assessment.	5.4	14.5	78.2
More of the modules I take should adopt electronic assessment.	56.4	25.5	16.4

Table 1 presents the data of the perceptions of the respondents who participated in this study. The analysis of the Likert items relates to the specific objectives of the study. Each of the items was analysed separately initially using a 5-level Likert scale ranging from strongly agree to strongly disagree response to the statement and then plotted only at 3 levels indicating a agree, neutral or disagree response to the statement.

Table 2 indicates the themes that emerged from the results. Most themes overlapped for both assessment types. These are discussed below:

Table 2: Themes as emerged from results

SUMMATIVE ASSESSMENTS	FORMATIVE ASSESSMENTS
Time efficient	Time efficient
Assists in preparing for formative assessments	
Simple design	Simple design
Easy to use	Easy to use

SUMMATIVE ASSESSMENTS	FORMATIVE ASSESSMENTS
Introduces new skills	
Environmentally friendly	
Immediate feedback and results	
More exciting than traditional methods of assessment	More exciting than traditional methods of assessment
Convenient	Convenient
	Reduces marking workload for academics

Self-assessments proved to be useful for students, as respondent one (R1) stated that the use of regular self-assessments ‘helps you study’. This was reiterated by R2, who felt that these self-assessments ‘prepare you for final assessment’.

R4, R5 and R6 all alluded to the time saving theme by stating that e-assessment ‘saves time’ because it is ‘quick’, (also R18) and ‘not time consuming’. R12 and R21 added that ‘it is quicker... spend less time to complete the paper’, thus as R20 stated, it is more ‘efficient’.

Simplicity of the system design and the ease of use was highlighted by R7 and R8 respectively. R9 and R10 echoed these sentiments, indicating respectively that it was ‘easy to move from section to section’ and ‘easy to correct mistakes’.

Students liked the MCQs format, especially as it is being automated, stating that this was a novel approach and something innovative (R11). R14 added that the e-assessments were ‘... easier than writing, less stressful, more advanced’, especially, as R41 stated, with ‘MCQs and one-word answer questions’. R15 and R16 found this approach more convenient ‘because it saves time and easy to correct mistakes’, as stated above. It also ‘avoids writing long answers’, stated R45. In addition, there is ‘less room for making silly errors such as grammatical and spelling errors’ stated R47.

The opportunity to develop new skills was highlighted by R17 who stated that the e-assessment equipped them with ‘new skills’, and R35 stated that, amongst other benefits ‘increases our typing skills’.

E-Assessment encourages green IT as it ‘saves paper’ (R19). Since ‘feedback is immediate’ (R22), it provides the student with ‘a quick way to gauge how much I know and allows one to see what aspects of work can be worked on’ (R24). R28 reiterated that with e-assessment ‘marks are made available immediately. Feedback is provided immediately to correct and learn from incorrect answers’. Thus, as R55 stated, e-assessment allows you to ‘practise repeatedly’ till you master the concept. e-Assessment provides an ‘easy tool, that takes a small amount of time, to assess your knowledge as compared to other tools of self-assessment’ added R46.

R52 stated that with flexibility to access it 'gives a chance to revise and review at home'; thus one can accomplish 'good revision which one can do at any time convenient' (R43). Furthermore, 'the LAN is more of a relaxed environment compared to the exam hall' added R48.

Overall, it is 'much better than traditional methods of assessments' said R52, especially since with MCQs, students have 'options to choose from' stated R44. R32 added that the adoption of e-assessment made studying for this module 'more interesting', especially, stated R28, since the 'question styles were more varied' than traditional assessment methods.

One respondent (R42) indicated that this 'platform ... reduces the workload placed on lecturers who have to mark scripts' and R36 added that 'it makes it easier on the examiner - no untidy handwriting'. Two major concerns raised by the students regarding the e-assessments were that: 'the marking should be double-checked as this will ensure accurate results' (R27), and 'care must be taken in reviewing answers (i.e. alternatives may exist for a particular question) (R51) – indicating that students lacked confidence in the nature of automatic marking. R25 felt that in formative assessments 'delayed feedback and results implies that it is just the same as the traditional pen and paper method' – students expect instant results, even with formative assessment.

Four open-ended questions were included in the design of the questionnaire to elicit further feedback from students, regarding their overall experience with e-assessments, Quizzes on Moodle. Two of these questions prompted students' feedback regarding improvements to e-assessment Quiz tool and the process of e-assessments. Responses from students were positive. In general, students embraced the idea of using technology and the Quiz assessment tool to enhance their learning of IsiZulu. Responses to these open-ended questions were similar to the discussion presented above.

However, mixed reactions on certain aspects were also emphasized, as presented below:

'Quizzes were well constructed, though the knowledge on the subject matter to be tested is restrained to the MCQ format' (R16).

'I find the online quizzes very useful as a practice tool with receiving results immediately and being able to see what was incorrect, and to be able to see the corrections' (R22).

'The quizzes were an easy form of applying the grammar rules and learning from incorrect answers' (R38).

'The layout is simple and easy to understand' (R53).

'This is an interesting way to learn and be assessed in a different language' (R28).

'Hope the university uses this method for all assessments' (R32).

Only one student still preferred the traditional form of assessment to e-assessment, as evident in the following remark:

'While I do not mind the e-assessment, I prefer using pen and paper, as a language is more about communication' (R18)

Student views on the improvements of the processes of the Quiz tool provided a range of opinions. Some pertinent quotations serve as a guideline for improvements to e-assessments:

R8 suggested that the answers be increased to include all possible options - 'Variation of answers could be increased to allow for greater accuracy of marking'.

R16 suggested that more challenging questions could be set in the e-assessment - 'I would rather fill/type in sentences than click the correct multiple choice answer, as this will test what I know'.

Despite being electronic, R26 wanted that 'paper should be provided for rough work to cater for students' preferences for the traditional pen and paper method'.

The interface design suggestion came from R6 - 'Improve the size of the writing. It was too small and accidental spelling errors could have occurred'.

6. Discussion of research findings

The objective of this paper was to present and discuss students' perceptions on their experience of e-assessments, specifically the Quiz tool. The findings of this exploratory study suggest that the adoption of the Quiz tool in this context has many benefits. In analysing the results, it was noted that students supported the idea of adopting the Quiz tool as a form of self-assessment at the onset, and then later as formative and summative assessments (90.9%, n=55). The implementation of the Quiz tool as part of the assessment routine enhanced positive learning as shown in similar studies (Sorensen, 2013; Cohen & Sasson, 2016). Furthermore, students who are often referred to as 'digital natives', are familiar with the technological aspects of Moodle, and many of them interact with this platform on a daily basis as part of their studies (Eccles *et al.*, 2012). Simple navigation through the system and easy access to Moodle were some of the factors considered when implementing the e-quiz, and were acknowledged by students. In addition, students engaged well with the language content of the e-assessment and were able to apply the language functions learnt in classroom sessions – a concept supported by the behavioural approach (Alessi & Trollip, 2000). Moreover, the results suggest that students were provided with many opportunities of language input through revision and reviewing their self-assessments or formative assessments. The ability

to focus on grammatical features, one of the key methodological principles, was also pointed out by students. This suggests that the students' attention was drawn to specific linguistic items. These findings thus support the considerations indicated by Nielson & González-Lloret (2010).

The overall positive attitudes or perceptions of students using e-assessments to assess students' knowledge and skills has been reported to be successful over many disciplines. However, there is not much literature on the use of e-assessments for the teaching and learning of isiZulu as a second language. The results indicate that they were satisfied having been given an opportunity to develop a new skill (63.6%, n=55). Students sampled in our study noted that processing the language forms seemed less stressful during summative assessment, as many opportunities were made available for repetition and revision exercises during self-assessments (Alessi & Trollip, 2000). Students were motivated to explore e-assessments in a language module and found that it was an interesting way to learn and to be assessed in such a course. In addition, their cognitive ability was heightened to some extent, as students applied their knowledge to the language content. As noted by Govindasamy (2001), well-formulated e-assessments can improve cognitive skills and enhance memorisation.

However, there were limitations noted to their process skills, since most of the question types were in MCQ format. Although a few students did suggest more challenging questions needed to be designed and implemented within e-assessments, other students highlighted that the MCQ format was more advanced than traditional methods, and they preferred the option to choose from a list. Studies relating to an MCQ format and the reliability and validity thereof, have been well supported in the literature (Govindasamy, 2001; Holmes, 2015). Evidence suggesting that MCQ type questions have a positive influence on students' achievements and that it motivates students' learning have been documented in previous studies (Holmes, 2015).

Studies highlighting the importance of students' perceptions for further improvements to e-assessments has been reported to be successful (Dermo, 2009; Erben *et al.*, 2008; Stockwell, 2012; Eccles *et al.*, 2012). Engaging students to be active learners, to enhance learner autonomy via self-assessments, or to provide feedback on the design and implementation of e-assessments link to the constructivist view this study has adopted. Students' individual differences, assessment preferences, and their familiarity with Moodle were important factors to be taken into consideration in the design of the Quiz. Whilst majority of students highlighted that they had preferred e-assessments, just one student felt more comfortable with the traditional pen-and-paper assessments. This means that further exploration into the use of Moodle Quiz tool could lead to interactive and authentic assessments, a feature not included in traditional paper-based assessments. Similar studies also reported on 'taking advantage of technological affordances' in order to ensure best practices in teaching and learning (Eccles *et al.*, 2012).

The importance of immediate feedback is well supported in previously cited literature (Rudansky-Kloppers *et al.*, 2014; Nielson & González-Lloret, 2010; Walker *et al.*, 2008) and by participating students who indicated that they could focus on the weaker areas

when revising. By revising and reflecting on their errors, students are able to draw their attention to the incorrect linguistic forms, thereby attending to them accordingly. Allowing students to perform their own error correction through the e-assessments, could therefore lead to enhanced second language acquisition (Nielson & González-Lloret, 2010). The feedback also provided a check and balance whereby students were able to compare their answers to the model answers. However, making provisions for model answers can be challenging especially in a language course. Multiple model answers should undergo thorough moderation and quality assurance (Rarh & Goel, 2011). Inconsistencies with answers may occur in the design of an e-quiz, as was pointed out in the findings.

Apart from the pedagogical and methodological implications of successful e-assessments, implementing e-assessments for large groups also seems an attractive way of assessing for the academic, as it can reduce the marking workload for academics (Walker *et al.*, 2008). Having the assessment scores archived on the software system eased the cumbersome administrative work for the academics, but the logistical, security, and technical challenges were still unavoidable (Singh, 2015).

7. Conclusion

In summary, students' perceptions of the adoption of e-assessments for both formative and summative purposes were interesting and informative. Students noted that e-assessments were convenient and time efficient as well as easy to navigate through the system. With respect to the design of the tool, students indicated that it was simple. Students also emphasized the importance of immediate feedback and results of the Quiz but also suggested that a variety of responses should be included, since it is a language e-quiz.

In South African higher education institutions, academics face challenges of large student classes, academic disruptions and an imbalance in teaching loads. The adoption of more innovative assessment techniques that are supported by the use of technology will help to alleviate the burden that many academics face. From student perceptions gathered in this study, students are keen to embrace the technology. The e-assessments generated enthusiasm and motivated students to engage with the tool. Hence, despite the initial time and effort required to set up these assessments online, the long-term benefit for academics is a great reward. From these discussions above, it is evident that the integration of technology through the Moodle Quiz e-assessment tool is beneficial in the teaching and learning of an isiZulu second language course.

8. Limitations

This study was conducted on a specific group of students, i.e. the first year medical students. Perhaps this study could be further expanded to include students enrolled for

the Basic isiZulu modules which caters for 500 -700 students. It would be interesting to expand the study with a larger cohort of students and investigate their perceptions on the implementation of the quiz tool for formative and summative purposes.

9. *Future Research*

This project can be extended in the future by improving the way in which e-assessments are rolled out within the isiZulu module, using the Quiz tool, based on their perceptions received in this module. More innovative approaches to future e-assessments to improve the rigour of the assessment process can be investigated. This will further lead to an integration of IT within disciplines, in the assessment process, supporting the call by UKZN to integrate the Moodle LMS into the teaching and learning process.

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