Short Report

Is blended learning the way forward? Students' perceptions and attitudes at a South African university

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Background. The COVID-19 pandemic has forced higher education institutions to rethink delivery of education. Blended learning (BL), particularly online/eLearning, has become the life support for continued education. BL is a pedagogical approach that combines online asynchronous and/or synchronous and face-to-face (F2F) interaction between lecturers and students, enabling learning to occur independently of time or place. Perceptions and attitudes of students towards BL are important predictors of success.

Objective. To determine the attitudes and perceptions of audiology and speech-language pathology students towards BL at the University of KwaZulu-Natal (UKZN), Durban, South Africa.

Methods. A descriptive survey design with quantitative methods of analysis was used. Eighty-six participants completed an online questionnaire through Google forms. The tool demonstrated good internal consistency, with a Cronbach α score of 0.82.

Results. Most participants agreed that combining traditional and eLearning – BL – improves learning skills and enables more student involvement in learning. Comparisons between attitudes and year of study yielded a statistically significant association, with senior students having a more positive attitude towards BL than second-year students (p=0.003). Attitudes between male and female participants were generally similar; however, females felt that BL helped them to understand lecture material better and to increase interaction (statistically significant; p=0.021). While 93% perceived the online platform, Moodle, which is used by UKZN, as being useful, only 51% indicated that it improved efficiency of learning to a great extent.

Conclusion. Despite the challenges around connectivity, computer illiteracy, system and technical problems, students concluded that BL enhanced the learning experience and fostered a student-centred approach to teaching and learning.

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The adoption of blended learning (BL) to support higher education has been slowly introduced over the past few decades in the majority of universities in Africa and other developing contexts. The COVID-19 pandemic has, however, radically revolutionised the manner in which education is delivered. The adoption of online teaching and learning is unprecedented and presents a unique opportunity for the delivery of education in the future. Technology has been used to deliver learning material, and to enhance communication and administration to stimulate and promote an effective learning environment.[1] eLearning tools have been integrated into the classroom, which has resulted in BL. BL includes activities that involve combining traditional face-to-face (F2F) and technology-facilitated online interaction between teachers and students.[2] Enhanced access to the internet and local area network connections, inclusive of information technology support, has increasingly advanced the application of eLearning in some parts of many developing countries. The rapid development and wide application of eLearning, online and in-class teaching methods complement each other and are beneficial for students and teachers.[3] From a pedagogical viewpoint the intention of health science education is to prepare students with essential knowledge, skills, strategies and techniques to develop solutions and resolve problems.[1] Overall, students demonstrate increased retention rates, better utilisation of content, increased collaboration and engagement, resulting in improvement of knowledge, skills and attitudes.[4]

However, online learning tools can be costly and difficult to accept for educators and students who are resistant to change, are apprehensive about new technology and have literacy limitations.[5] Other difficulties include insufficient technical/user support, poor network capacity/stability, limited access and infrastructure capacity, inadequate organisation and co-ordination.[5] Perceptions and attitudes towards higher education may differ among students of contrasting educational and cultural backgrounds regarding teaching and learning, thus affecting their academic decisions, expectations and performance. Several other variables influence students' attitudes and perceptions towards BL, including but not limited to age, gender, learning styles, prior experience with computers and technology acceptance.[6] Many students accessing higher education in the South African (SA) context come from underprivileged schools and disadvantaged socioeconomic environments. They have limited or no access to school or community libraries, computers and essential services, such as electricity.[7]

Similarly, in other African countries, such as Ghana[8] and Nigeria,[9] poor infrastructure development and connectivity at universities, especially in rural communities, pose significant challenges to online learning. All students may therefore not be familiar with various types of technology and may not have positive perceptions, particularly towards eLearning. Yet, this method is largely being promoted in higher education institutions. As the University of KwaZulu-Natal (UKZN) incorporates BL in forms of online lecture materials and other electronic sources to supplement traditional F2F methods of learning, it is important to understand students' perceptions and attitudes to BL.

Methods

This study aimed to determine the attitudes and perceptions of audiology and speech-language pathology (SLP) students towards BL. A descriptive survey design with quantitative methods of analysis was implemented. The study population comprised all 178 audiology and SLP students from year 2 to year 4 at UKZN. There were 6 participants in the pilot study. Of the remaining 172, 86 completed a structured self-administered questionnaire, yielding a response rate of 50%. Most of the participants (80%; *n*=68) were female; 59% (*n*=50) were from the Discipline of Audiology and 53% (*n*=45) from the third year of study. Most (60%; *n*=52) of the students came from quintile 4 and 5 schools (quintile 1 represents the poorest schools and quintile 5 the most affluent schools), 50% (*n*=43) indicated that their homes were in urban areas, and 55% (*n*=47) lived at a university residence while studying. For most participants (54%; *n*=46) isiZulu was their home language. The questionnaire was developed by adapting questions from a study conducted by Aladwan *et al.*[10] and consulting the relevant research articles. The questions related to participants' exposure to and understanding and acceptance of BL; frequency of online activities; attitude and perceptions towards BL-enabling learning activities and outcomes; and ease of use of the online platform, its functionality and challenges encountered. It comprised closed-ended and open-ended questions, where participants could elaborate on or explain their perceptions and attitudes, as well as Likert scales. Data were collected online using Google forms. To ensure that the questionnaire and online system were appropriate for the main study, a pilot study was conducted with 6 students. Information obtained revealed that the length of the questionnaire was appropriate, the questions were not ambiguous, and it took students ~10 - 15 minutes to complete. The documents made available to participants on Google forms included an information document, the consent form and the questionnaire.

For the purpose of this research study, both descriptive and inferential statistics were used. Non-numerical data were coded and entered on Excel (Microsoft Corp., USA) and then exported to SPSS version 26 (IBM Corp., USA) for analysis. The descriptive statistics were displayed in the form of frequencies and percentages. Pearson's χ^2 tests were used to determine associations between gender and attitudes; discipline and attitudes; and levels of students and attitudes. Fisher's exact test was used if any column had <5 entries. Non-parametric tests, i.e. the Wilcoxon rank-sum test and Kruskal-Wallis test, were used for data that did not follow the normal distribution to make comparisons between the two groups of continuous measures. The one-way analysis of variance (ANOVA) was used to compare the group means. The confidence level was set at 95%, with a significance level of 0.05. The data analysis was done in consultation with a statistician.

Ethical approval

Ethical approval to conduct the study was obtained from the Humanities and Social Sciences Research Ethics Committee (HSSREC), UKZN (ref. no. HSS/0314/0194). Gatekeeper access was provided by the registrar of the university and academic leaders of the respective disciplines.

Results

About 74% (*n*=64) of participants had access to the internet outside of the main university premises, with 95% (*n*=82) accessing the internet daily. However, only 40% (*n*=34) accessed the Moodle online system on a daily basis – 61% (*n*=52) accessing it for ≤20 hours per month, mainly for quizzes, uploaded videos and assignments. Most participants (89%; *n*=77) agreed that a combination of traditional and eLearning is effective; improves learning skills (83%; *n*=71); enables students to be more involved in learning (84%; *n*=72); and encourages participation (84%; *n*=72). However, 38% (*n*=33) indicated that BL can be challenging. Participants had to rank the learning method in order of preference: 79% (*n*=68) indicated the F2F learning method, followed by 63.3% (*n*=57) BL and 46.5% (*n*=40) the eLearning method. There was a statistically significant association between

Table 1. Challenges experienced with the Moodle online platform and recommendations for improvement

Challenges, *n*=58	*n* (%)	Recommendations, *n*=48	*n* (%)
No difficulties	9 (16)	No suggestions	10 (21)
User friendly		No concerns	
Connectivity and access issues	13 (22)	Training of staff and students	5 (10)
Poor internet connection/network issues/bandwidth speed/limited		Training of staff	
Wi-Fi/no internet		Orientation for computer-illiterate students	
		Tutorials on Moodle use	
System and technical difficulties	11 (19)	Lecturers	16 (33)
Issues with uploading and downloading lecture material/takes too long		Better organisation of material	
Several restrictions on the system		Upload lectures prior to lecture time	
		Add appropriate captions to lecture notes	
		Display content notifications	
Lecturer issues	13 (22)	Improve Moodle platform	11 (23)
Quizzes are confusing		Efficiency	
Lecture notes not uploaded in time		Effectiveness	
No content notifications		Organisation	
Personal factors	6 (10)	Technical accessibility	6 (13)
Computer illiteracy leads to frustration		Improve system capacity	
Not adequately interactive		Increase uploading document size	
Training and orientation regarding Moodle	6 (10)		
Little guidance given to students about how to use Moodle			

the year of study and whether there was a preference for BL or F2F learning. Third- and fourth-year students had a more positive attitude towards BL than F2F learning than second-year students, which was statistically significant (p=0.003) (Fisher's exact test). Students from urban and rural areas preferred F2F learning to the other methods; however, more students from rural areas indicated this as a preference (statistically significant; p=0.037) (Fisher's exact test). Male and female participants' attitudes towards BL were similar; however, more females agreed/strongly agreed that BL reinforces interaction (p=0.021) (Fisher's exact test). Pearson's χ^2 test revealed that IsiZulu-speaking participants were more likely to agree that BL improves learning skills (p=0.042); allows for joint participation ($p\leq$0.001); allows for more reading for assignment preparation ($p\leq$0.001); and that the material was well organised on Moodle (p=0.035). The Wilcoxon's rank-sum test showed that there was a slight mean difference between the disciplines. Audiology students had a more positive attitude (mean (standard deviation (SD)) 1.94 (0.818)) than SLP students (2.33 (0.645)), and for the former BL was more meaningful than F2F learning, as it incorporated online discussions (statistically significant; p=0.023). The ANOVA test showed that with regard to perceptions, significant differences were noted between disciplines, with SLP students perceiving that BL was more convenient than F2F learning (F (1, 84)=4.53; p=0.036) and that BL contributes towards in-depth thought about a module (F (1, 84)=5.81; p=0.018). Participants were asked to rate the Moodle platform as either useful, not useful or unsure. The majority of participants (93%; n=80) described it as useful, but only 51% (n=44) perceived it as improving the efficiency of learning greatly. Pearson's χ^2 test revealed that there was a statistically significant relationship between those who had access to the internet and found BL to be more convenient than those who did not have access and found F2F learning more convenient (p=0.025).

An open-ended question was administered, which was related to the challenges experienced with the online learning platform Moodle and recommendations for improvement. Fifty-eight participants responded to the question on challenges experienced with 16% (n=9) reporting no difficulties, while the other participants provided 5 key areas of concerns. Of the 48 that responded to recommendations, 21% (n=10) stated that they had no suggestions or concerns for the Moodle online platform and the other participants provided 4 main areas of recommendations (Table 1).

Discussion

The majority of participants in the current study had access to the internet on the university premises and at off-campus residences, while >80% of the 250 students in 3 universities in north-eastern Nigeria did not have access outside of the university.[9] Access to the internet in various developing contexts is known to be problematic given the inadequate infrastructure and connectivity, especially for students residing in rural areas, even in the SA context. There therefore needs to be a concerted effort by all stakeholders to ensure access in rural communities, perhaps starting at the level of schools. Having adequate access to the internet on campus, in campus residences and private access could be one of the reasons that students in the current study had a more positive attitude towards BL. It was encouraging that most students preferred F2F learning and were also positive regarding BL. A study of medical students in India found an increasingly positive attitude to BL in fourth-year students, who were more prepared to be independent learners than first-year students, who have a preference for educator-directed learning.[6] This could also be due to the familiarity with the system, its functionality and having gained more computer literacy and self-directed learning skills.[11] In constructing successful BL, course organisers must decide in advance which parts of the curriculum are to be delivered F2F and which can be delivered online or by another modality of eLearning. The balance between F2F education and eLearning is delicate, depending on factors such as learning outcomes, student level, electronic resources and trainer's experience. Measures should be taken to prevent students who lack computer skills from becoming disadvantaged or frustrated and developing computer-hostile attitudes. A study was conducted at an SA university in the Western Cape Province of students who did not have prior access to technology in their home or community, who did not feel proficient with computers, and who were not comfortable with online tasks.[7] Their limited knowledge of computers and BL also had an impact on how frequently they used BL.[7] It is suggested that all students entering university need to complete a compulsory computer literacy-certificated short course to ensure that they are proficient regarding online learning activities. Moreover, lecturer training in pedagogy and technology, administrative and technical support to ensure better organisation of course material, uploading material on time and verification of the uploaded material play an important role in the success of BL programmes. Continuous feedback from students about electronically delivered material is therefore important and should be included in the course evaluation. Future research to determine how the effects of BL translate to clinical audiology and SLP practice should be undertaken. The results of the current study are in agreement with those of other studies on the effectiveness of eLearning as part of BL, which showed that students' engagement was increased and their perception of the educational environment was improved. However, further research in this area is still necessary before lecturers can make assumptions regarding the long-term effects of BL in clinical education. The current study was based on attitudes and perceptions of benefit. Perhaps future studies could measure actual benefit and outcome using different methods, and determine responses related to preferences. A limitation of our study was that it was conducted at one university and had a small sample size, thereby limiting generalisability.

Conclusion

BL is effective in improving students' skills, enhancing the learning experience and fostering a student-centred approach to teaching and learning. It can help students develop 21st century skills, such as communication, information literacy and the use of digital technologies, for a range of purposes. A blended approach to clinical education does have potential in addressing the highly contextual and complex health needs that are essential to perform competently in clinical practice. Although eLearning is an established and effective approach in health science, as demonstrated in other research studies, it should not replace traditional learning, as students in this study showed a preference for contact teaching. BL is probably a better approach than purely web-based/online teaching. All educational formats have strengths and limitations, BL being no exception, necessitating careful design, training, implementation and evaluation.

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