

EXPLORING STUDENT PERCEPTIONS OF USING THE LEARNING MANAGEMENT SYSTEM AND SOCIAL MEDIA FOR BLENDED LEARNING AT A RURAL UNIVERSITY

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ABSTRACT

Blended learning combines the strength of face-to-face learning with e-learning, which has become the catalyst for education reform today. Unfortunately there are many obstacles that can derail this format of hybrid learning before it can reach its full potential, especially at universities where budgetary constraints inhibit the development of the information and communication infrastructure. This study seeks to capture students' perceptions regarding web-based activities at a rural university.

Purposive sampling was used to generate the sample and a combined total of 380 second- and third-year students participated in this study. Second- and third-year students were selected as it is expected that they have experienced the university learning management system and its shortcomings, and are hence in a position to compare the learning management system with social media platforms. The data collection instrument was a self-administered questionnaire, which was analysed using quantitative and qualitative methods. The findings indicate that students at the rural university preferred to engage in blended learning through social networking technologies, as opposed to the learning management system, which they found was mostly unavailable or inaccessible at their residences.

Keywords: blended learning, social networking technologies, students, barriers

1. INTRODUCTION

The move to blended or online courses is set to revolutionise education by making it more accessible and individualised (Christensen, Horn and Johnson 2011; Horn and Staker 2011). Horn and Staker (2011) define blended learning as a formal education programme in which a student learns in part through online delivery of content and instruction and with some element of student control over time and place, and in part at a supervised location away from home. Online delivery here refers to web-based learning, e-learning and asynchronous learning networks. Dziuban, Hartman and Moskal (2004) argue that the mere existence of so many names for what is essentially a single concept suggests that no dominant model has yet been accepted as a definition of standard practice.

With a student-focused form of approach, it is safe to say that in order to identify best practice for blended learning, it is essential to gauge the perceptions of the students who use these programmes. Another crucial aspect of blended learning in a rural environment is a sustainable Information and Communications Technology (ICT) infrastructure, which is the nexus to enabling the success of blended learning.

The aim of this study was to determine how students perceived Learning Management Systems and mobile/social media delivery in a rural university, and through this identify barriers and best practice in blended learning. The students targeted in this study were asked to compare a learning management system with a social media network, to determine their preferences and their perceptions of both platforms.

2. BLENDING THE LEARNING ENVIRONMENT

Hoic-Bozic, Mornar and Boticki (2009, 19) highlight that Information and Communication Technology has become an indispensable part of modern education, especially because of the opportunities this technology offers to accomplish the teaching paradigm of blended learning. The literature describes various blended learning models

(Singh 2003; Thorne 2003; Bonk et al. 2003), which range from supplementing the face-to-face learning process with online materials, to conducting learning through the use of a Learning Management System (LMS), with this being supplemented by face-to-face meetings, which according to Precel, Eshet-Alkalai and Alberton (2009) is common practice in most open or distance universities. Precel et al. (2009) further note that there is no ultimate formula for blending the online and face-to-face learning components and emphasise the challenges faced by designers of blended learning to achieve the best proportion in every learning situation.

Hoic-Bozic et al. (2009, 20) describe two fundamental approaches of blended learning: the program-flow model and the core-and-spoke model. The program-flow model is particularly appropriate during the transition from face-to-face to blended learning. In the core-and-spoke model, the designer develops a single primary approach and then delivers the content, the interactive elements, resources and tests as an additional module (the spoke). Each module can either be mandatory or optional and extends the primary approach (the core). This article is based on the program-flow model, which is composed of steps that are executed by the student in a linear sequence. Here an exercise or test is included to assess the results of learning. Bertolin et al. (2012,70) state that in the context of distance education, quality assessment is more complex and more important, because the differences in space and time between professors and students have an impact on the learning process. He further adds that a course under the blended education mode is significantly flexible in terms of time and space during the learning process, which provides a unique environment for the student.

Matodzi, Herselman and Hay (2007, 71) highlight that e-learning provides content matched to what the student needs to learn at that point in time, in a style that matches the way that the student prefers to learn, in a quantity matched to the time the student has available, in time that is convenient for the student, and where the student happens to be.

3. CHALLENGES OF ACCESS TO BLENDED LEARNING IN A RURAL ENVIRONMENT

Dziuban et al. (2004) advise that blended learning also brings with it operational challenges. Blended courses require the use of multimedia-equipped classrooms for the face-to-face interaction. Individual access, internet access and access to a computer are needed to facilitate the blended programmes. In some countries operational challenges pose a major problem. Tshibalo (2007, 687) states that African countries are generally characterised by technologically less-advantaged students, especially in rural areas. In South Africa there have been key developments in ICT infrastructure, which have been significant. Through the 1996 Telecommunication Act, the government stressed the need to promote the universal and affordable provision of telecommunication services (Oludolapo 2010). However, what must be noted at the outset is that a large proportion of

South Africa's population lives in rural areas (Dlunwana 2009). According to COFISA (2008), only 2.3 per cent of rural households own or have access to a computer in rural South Africa, and only 5.4 per cent own or have access to a landline. This creates a digital divide between the urban and rural areas. Furlonger (2002) observes that urban scholars have an advantage over rural scholars in that they have access to computer centres, the internet, experienced teachers and have other facilities to choose from, whereas rural scholars more often than not, do not even have access to electricity, therefore it would be very unlikely that they would have access to a computer laboratory. A study conducted by Sithole, Moses, Davids, Parket, Rumbelow, Molotja and Labadarios (2013, 75) found that the internet was generally less accessed and used by the rural than the urban population of South Africa. Their study also found that, although there was a steady increase in rural computer access, internet access and internet use by rural users remained far less than in urban areas.

4. SOCIAL MEDIA AS LEARNING PLATFORMS IN BLENDED LEARNING

The tremendous growth in the use of all forms of mobile and wireless devices, from cell phones to handheld computers, and the technological breakthroughs in miniaturisation and broadband technology (Engelbrecht 2003, 29) increase the platforms available for blended learning. Mayisela (2013) examines how the use of mobile technology could enhance accessibility and communication in a blended learning course. In the study, courseware was placed on a learning management system (Blackboard) where students could access notes, learner guides and solutions to tests, and engage in group work. There was a lack of computer equipment, which made it practically impossible for all the students to access a computer. However, it was observed that students who had smartphones spent a considerable amount of time on Facebook, and so it became essential to explore the use of Facebook to communicate with students. Notes that were posted on Blackboard were simultaneously posted on Facebook, which inspired a discussion amongst students and improved participation. The findings of this study were consistent with the view held by McDonald (2009) that social networks such as Facebook enhance collaboration and information sharing. Penzhorn (2013, 65) sees social networking as an environment that can be used to set up 'learning communities' in which students can meet and communicate with one another. She also highlights that the influence of social media on students' learning habits and the overall approach to their acquiring information is experienced by educators on a daily basis. Today's young people think and process information differently than previous generations. Tess (2013) states that at an academic level, various studies have indicated that increased interaction and participation in course discussions are anticipated benefits of using Facebook. Penzhorn (2013, 70), in her study aimed to obtain information regarding the opinions and feelings of students after the introduction of social media in an Information Literacy

course and found that the overall opinions on the use of Facebook, Twitter and blogs were positive.

5. CONTEXT OF THE STUDY

The rural environment of Limpopo provides the context in which this study was undertaken. According to Gardiner (2008, 8), Limpopo along with KwaZulu Natal and Eastern Cape have up to 62 per cent of the public schools in South Africa. He also identifies these provinces as the poorest and the least developed. In Limpopo there are 2 348 rural schools with 929 188 students aged between 6 and 18 years (Gardiner 2008). These schools inadvertently become feeder schools to the closest university in the province, one of which can be identified as the University of Limpopo. It is important to understand the peculiarities of a rural environment that the student must learn to thrive in, for example, the lack of access to basic facilities such as water and electricity is just one of the challenges that are faced on a daily basis. As a student attending university, the problems are compounded by the lack of infrastructure to support the technological needs for open and distance learning students in a rural environment. This reveals a generation of techno-savvy students who emerge from living in a rural environment, having to face countless challenges. However, with the presence of some technology, limited access to the internet is available via the use of cellular towers and selected Wi-Fi zones. This provides a platform for to social media and the use of other mobile devices to access the internet. The student's reliability on the electronic resources provided by the university then becomes paramount to the success of their blended learning courses. Exploring student perceptions of using the Learning Management System and social media or learning under these conditions, therefore, becomes important in determining the barriers and best practice in blended learning. The Learning Management System that is currently used at the University of Limpopo is Blackboard.

6. THEORETICAL FRAMEWORK

The questionnaire that was used as the instrument to collect data in this study was made up of questions that related to the students' experience of the Learning Management System as well as other social media networks. This experience was analysed quantitatively and qualitatively using appropriate means to measure the results. The students' experience with both forms of ICTs was inadvertently dependent on their external environment (e.g. lack of accessibility to the LMS). Weegar (2012) states that the focus of behaviourists (who believed that 'only observable, measurable, outward behaviour is worthy of scientific inquiry') was on learning that was affected by changes in behaviour. According to Overskeid (2008), Watson published *The Behavioural Learning Theory* in 1913, a study of the relationship between organisms and their environment. Watson used Pavlov's findings on animal responses to stimuli. This led to Pavlov's conclusion that humans too could be conditioned to respond to external stimuli.

The behaviourist theory conceptualises the behaviour of the students in response to their circumstances. Alzaghoul (2012, 27) explains that the behaviourist school of thought postulates that learning is a change in observable behaviour caused by external stimuli in the environment. As a proponent of behaviourism, Skinner (1974) studied how learning is affected by changes in the environment and sought to prove that behaviour could be predicted and controlled, but also argued that since it is not possible to prove the inner processes with any available scientific procedures, researchers should concentrate instead on cause-and-effect relationships that could be established by observation. In this study, through the analysis of the students' response in terms of their experience with ICTs such as the LMS and social media, it can be gauged that the 'cause' of not having adequate access to the LMS or the unavailability of it, would drive them to utilise the social media networks. The 'effect' would lead to students abandon the use of the LMS provided by the University of Limpopo. For open and distance learning that caters for students in a rural environment who engage in blended learning, this would mean that their choice of ICT would primarily be determined by their external circumstances which are outside their control.

7. METHODOLOGY

This study was conducted using the survey research method, which Rubin, Rubin and Iaridakis (2010, 219) cite as being an efficient means of gathering information systematically and efficiently from large numbers of people. Purposive sampling was implemented to identify the respondents in this study, which targeted a group of individuals who shared specific characteristics. The criteria of purpose which determined the selection of respondents was that students had to have experienced both platforms of ICT – Learning Management System as well as social media. The survey method used was in the form of a questionnaire, which was distributed to second- and third-year students at a rural university. The questionnaire consisted primarily of qualitative multiple-choice questions, which addressed three main areas under scrutiny in this study: student perceptions; barriers to blended learning and what is the best practice for blended learning. One open-ended question invited the respondents to comment on any issue pertaining to the blended learning approach.

Second- and third-year students were selected, since it is expected that they have experienced the virtual environment coupled with face-to-face interactions in class. These students were part of a course that incorporated the elements of blended learning. There was limited face-to-face interaction with the students with much of the course dependent on the use of ICTs. This made them ideal participants to compare the various learning environments and social media platforms in a rural environment. A total of 380 responses were generated for this study. The data was collected, coded and analysed using Statistical Package for Social Sciences (SPSS) version 21. The responses to the open-ended question were analysed to identify common themes that generated from the

responses. Here the analysis of the open-ended question was conducted according to the categories identified in the itemised question.

The study contains the responses of 380 students to 31 Yes/No/Unsure questions and one open-ended question. The findings are based on a selection from the 31 questions that are relevant to the objectives. Students who were unsure about certain aspects (e.g. perception-based questions on Blackboard and social media) were excluded from the sample when necessary, hence, the sample size varies from question to question. Where multiple questions addressed one factor, the questions were grouped together and a factor score was calculated. Descriptive statistics were calculated for each relevant factor/question. Poisson and logistic regression were performed on two contingency tables. Griffin (2013) explains that Poisson regression is used when we have an outcome variable that is a count of things. On the other hand, logistic regression refers to an outcome variable that exists in two states (eg. male/female; yes/no; black/white).

8. DATA ANALYSIS

This analysis provides data for three key areas: The Learning Management System - Blackboard; Social Media Technologies (SMTs) and large classes.

8.1. Students' blackboard experience

Students' Blackboard experience was based on four (4) task-related questions: 1) Have you submitted assignments using Blackboard? 2) Have you done tests on Blackboard? 3) Have you communicated with other students via Blackboard? and 4) Have you communicated with your lecturer via Blackboard? A student was awarded one point for every positive response, hence the minimum task score is 0 and the maximum is 4. The students' responses to factors concerning Blackboard were filtered by excluding all students who had not performed any tasks on Blackboard.

Table 1: Experience with Blackboard

Number of tasks	0	1	2	3	4	Total
Number of students (%)	35 (9.2)	96 (25.3)	122 (32.1)	87 (22.9)	40 (10.5)	380 (100)

In Table 1, only 35 (9.2%) of the 380 students claim that they have never used Blackboard, whereas the other 345 (90.8%) have performed at least one task on Blackboard. This result means that the students identified as not having used Blackboard will be omitted from any questions pertaining to their experience using Blackboard.

Table 2: Task classification

Type of Task	Number of students (%)
Compulsory only	137 (39.7)
Compulsory & Optional	179 (51.9)
Optional only	29 (8.4)
Total	345 (100)

Tests and assignments may be considered compulsory tasks and communication may be considered optional tasks. Table 2 shows that only 39.7 per cent of the students performed what is required of them, however, 51.9 per cent performed both types of tasks.

Students' perception of Blackboard was based on the following three (3) questions: 1) Do you find Blackboard useful for catching up with the lectures? 2) Does Blackboard make large classes more bearable? and 3) Do you think Blackboard is under-used? A student was awarded one point for every positive response, hence the minimum perception score is 0 and the maximum is 3. Only students with a non-zero task score were considered for this factor. This exclusion reduced the number of suitable students to 345.

Table 3: Perception of Blackboard

Perception score	0	1	2	3	Total
Number of students (%)	24 (7.0)	90 (26.1)	160 (46.4)	71 (20.5)	345 (100)

Table 3 shows 24 students (7.0%) perceive Blackboard as completely useless (0 perception score). However, of these 24 students 11 (45.8%) have performed only one task on Blackboard and 10 (41.7%) have performed only 2 tasks. Their experience with Blackboard is thus limited. Of the 40 students with maximum experience of Blackboard, 0 per cent perceived Blackboard as completely useless. In addition, 50.5 per cent of students responded that they learnt Blackboard on their own, whereas the other 49.5 per cent had some form of assistance.

Poisson regression (Table 4: Perception of Blackboard based on student's knowledge of Blackboard) was performed with perception of Blackboard as the response variable and the following two predictor variables: 1) Students had to learn Blackboard on their own, and 2) Number of tasks performed on Blackboard. The regression results are summarised in the table below and show that the number of tasks students performed on Blackboard is the only significant factor at the 5 per cent level. This means that whether or not they had to learn Blackboard on their own did not affect their perception of Blackboard and that the only association is between perception and number of tasks performed on Blackboard.

Table 4: Perception of Blackboard based on student’s knowledge of Blackboard

Predictor	Poisson regression results		
	Wald Chi-Square	df	p-value
Learned Blackboard on their own.	0.001	1	0.974
Number of Blackboard tasks.	10.616	3	0.014

From Figure 1 it is evident how the perception score increases with an increase in the number of tasks.

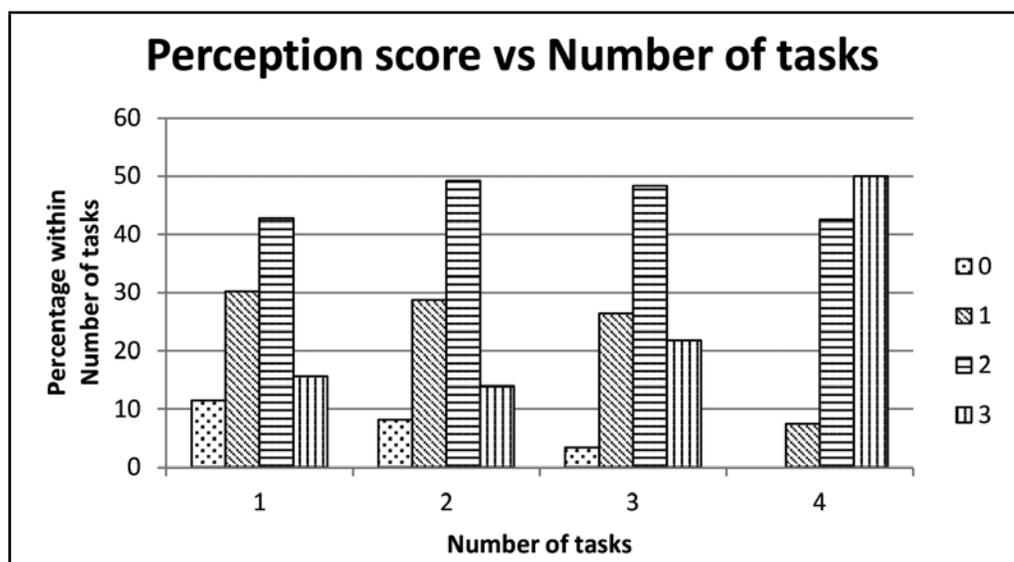


Figure 1: Association between perception and number of tasks

8.2. Students perception of social media technologies

In Table 5, students’ perception of Social Media Technologies (SMT) was measured using the answers to the following three questions: 1) Do you think that learning through these platforms will enhance student participation and engagement? 2) Do you think that these platforms will make the course content more interesting? 3) Do you think that social networking helps build and strengthen a sense of community within a learning environment? A student received one point for every positive response and 0 otherwise, hence, the minimum social technologies perception score is 0 and the maximum is 3. As a further measure, only students who indicated that they have used at least one social media platform were considered for the ‘perception factor’. This reduced the total to 353.

Table 5: Perception of social media Technologies

Social technologies perception score	0	1	2	3	Total
Number of students (%)	19 (5.4)	40 (11.3)	67 (19.0)	227 (64.3)	353 (100)

In Table 5, only 19 (5.4%) students responded negatively to all three Social Media Technology questions, namely, they perceive SMT as being useless within a learning environment, whereas 227 (64.3%) responded positively to all three questions. The majority of students feel that SMT will be useful within the learning environment.

Table 6: SMT perception breakdown

Question	Percentage of students who responded positively
Enhance student participation and engagement?	76.1
Make course content more interesting?	76.6
Build and strengthen a sense of community?	86.1

It is evident from Table 6 that the positive responses are significantly high, compared to the negative responses, regarding every aspect of SMT.

8.3. Large classes

Logistic regression was performed with the question: 'I do not enjoy attending large classes' as response variable and the following questions as predictor variables: 1) I cannot really interact with the lecturer, 2) I am unable to share my ideas because I feel intimidated in large classes, and 3) It is very difficult to form a network with other students. This was done in an effort to identify which factors (predictor variables) contribute to the students' dislike of large classes. Only 'yes' and 'no' answers were accepted for the relevant questions, hence, the number of students used for this analysis was 297. Table 7 contains the relevant results and all p-values are significant at the 5 per cent level (indicated by *). This means that every factor contributes to students' dislike of large classes.

Table 7: Like/dislike of large classes

Question	Logistic regression results		
	B	S.E.	p-value
I cannot really interact with the lecturer	0.664	0.267	0.013*
I feel intimidated with large classes	0.668	0.272	0.014*
It is very difficult to form a network with other students	1.098	0.255	0.000*

9. QUALITATIVE DATA ANALYSIS

Question 32 (Do you wish to make any further comments?) was asked to afford students the opportunity to air their opinions on any issue pertaining to their perception of blended learning at a rural university. Of the 380 students who participated, 199 students did not answer this question. The balance of the responses (181) were analysed based on the areas students focused on in their responses. In some of the responses, students cited more than one comment. Through content analysis, the following categories were identified:

- Access to Blackboard should be extended to the residences (113 responses): Students complained of a lack of access to Blackboard once they were in their residences. This made accessing notes, assignments and tests only possible when students were in the computer labs.
- Shortage of computers (82 responses): The proportion of students far outweighs the number of computers that are available on the campus. This causes major logistical problems for students who require access to a computer, especially when there are stringent assessment/assignment deadlines to be met.
- Facebook must be unblocked (56 responses): At this rural university Facebook is currently blocked, which means students cannot access it at the computer labs or use the wireless networks to access it elsewhere on campus. Students mentioned accessing Facebook through their cell phones, which gave them access to communicate with their friends and other students.
- Lack of internet access (135 responses): Students complained about the poor internet service provided to the students, which they found to be disruptive to their studies.
- Online learning through social media networks (108 responses): Students were far more supportive of this compared to the use of Blackboard, as they had easy access via their cell phones.
- Large classes are boring (46 responses): The students find large classes disruptive and some stated that they were boring and less interesting.
- More contact with the lecturer (52 responses): Students wanted contact with their lecturers to increase, as many complained of not having sufficient one-on-one time with their lecturers, due to classes being so big.

10. DISCUSSION OF FINDINGS

The aim of these findings is to ascertain, through the results generated in the data analysis, what the students perceptions were from using the LMS and social media for learning, and through this, identify and establish what the barriers and best practice are in terms of blended learning at a rural university. Students' experience of the learning

management system (Blackboard) is one of the key factors in ensuring success in the blended learning experience. The findings gleaned from the quantitative data indicate that the highest number of students (122) scored two (2), which shows that most of the students who participated in this study have 'average' experience with Blackboard. The results of the Poisson regression (Table 4 – Perception of Blackboard based on student's knowledge of Blackboard) implies that experience with Blackboard is a barrier to blended learning. Regardless of whether or not they had to learn Blackboard on their own, students who have performed fewer tasks on Blackboard perceive Blackboard as less useful and will, therefore, be less inclined to participate in a blended learning approach.

Although the Poisson regression results identify experience as a possible barrier, they do not identify the reasons for this result. Table 2 indicates that 51.9 per cent of the students performed optional tasks in addition to the compulsory tasks, which implies that the students have an interest to explore. The views expressed in (the qualitative) question 32 provide some insight into the reasons for the aforementioned result. Here responses such as 'Blackboard is not always accessible in the computer labs', 'Because there is not internet access, we cannot always access Blackboard', 'Blackboard is not accessible in our residences', 'We cannot access Blackboard outside of campus', contribute to their low task experience of the learning management system.

Students' perception of social media technologies indicate that 64.3 per cent perceived social media technologies favourably. In addition, 221 (97.4%) of the students who perceived social media favourably included Facebook in their 'social media of choice' selection. The qualitative question generated responses such as 'Lecturers should use Facebook to reach us because we have our phones and can use this rather than Blackboard', 'Although Facebook is blocked on campus we can still access it through our phones so maybe lecturers can post our assignments on Facebook which we can email to them', 'We should consider using Facebook to keep in contact with our lecturers', are indicative that social media has enormous support from students at the rural university. This suggests that social media networks can be seen as best practice in blended learning at a rural university. The choice of which social media can be used will depend on the course content and outcomes.

Another possible barrier in the implementation of blended learning at a rural university is the issue of large classes, since 55.8 per cent of the students indicated that they do not enjoy attending large classes. The logistic regression (Table 7 – Like/Dislike of Large Classes) identified three reasons for students' dislike of large classes. However, one of the blended learning components requires face-to-face interaction with the lecturer. Sometimes a lack of resources prevents the creation of smaller lecture groups.

The lack of internet access and lack of computer availability were two issues raised by students that impacted negatively on their development in class. Bozalek, Ng'ambi and Gachago (2013, 431) identified similar constraints in their study, where 54 per cent of students indicated that there were problems with the institution's infrastructure and,

in particular, highlighted inadequate access to the internet and lack of equipment, such as computers or data projectors.

11. CONCLUSION

This study aimed to explore students' perceptions of using the Learning Management System and social media for blended learning at a rural university, and through this identify and establish the barriers and best practice in blended learning at a rural university. The barriers highlighted in this study such as poor internet access, lack of computers and an ineffective learning management system are not new challenges that are exclusive to a rural environment, however, similar constraints are experienced at other institutions, which is evident in research conducted by Sithole et al. (2013), Kizito (2002) and Bozalek et al. (2013). The best practice for blended learning can be derived from the responses of the students' perceptions of blended learning, which, in this case, was the use of social media technologies. Here too, the suggestion of social media technologies in blended learning is not new, but has been implemented and researched widely by Oludolapo (2010); Mayisela (2013) and Buzzetto-More (2012); these have positively impacted on blended learning. The use of social media technologies can be manipulated to suit the needs of the student and the lecturer without having to deal with major issues of access that seem to be prevalent at many other institutions. As Mitchell, Smith, Louw, Tshesane, Petersen-Waughtal and Du Preez (2007, 699) explain, any decisions concerning the use of technology must be made based on the access and abilities of the students for whom it is meant.

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