

Determining How the Faculty at the Polytechnic of Namibia are Responding to the Introduction of E-learning in the Form of Blended Learning

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"If you bring in these technologies and don't think ahead to how they'll be used to promote learning and the acquisition of skills, then the only thing that will change in school is the electric bill."- David Thornburg

Abstract

This study was conducted to guide the management at the Polytechnic of Namibia on how to address the challenges the institution faces with regard to the effective implementation of e-learning. The study focused on the reasons for the use and non-use of e-learning by faculty. The study also gave faculty the opportunity to state what they would need from the institution to incorporate e-learning in their courses. The results of this study show that faculty are in favour of using e-learning but need the management to recognize that using e-learning will change the current institutional framework. Workload implications for using e-learning, infrastructure, access to the technology, training, user and technical support are all areas that need to be addressed before faculty will be willing to fully embrace e-learning. The management needs to provide leadership, direction and support for the faculty while addressing their concerns in a positive manner.

Background and Rationale for the Study

Namibia's development is guided by Vision 2030; it features education and training as the driving force behind the third national development plan (<http://www.npc.gov.na/vision/pdfs/Summary.pdf>).

For developing countries investment in higher education is seen as the tool to development (Yieke, 2005:73). One way to increase access to higher education to the masses is through distance education. Today through advancements in technology, e-learning offered via a course management system (CMS) like Blackboard, WebCT, MOODLE (Modular Object Oriented Dynamic Learning Environment), KEWL (Knowledge Environment for Web Based Learning) etc. are emerging as the preferred mode of instruction over the conventional print-based mode distance education. This is because it provides students with study materials and provides opportunities for communication and interaction (Nichols, 2001, p: 10). It also provides the benefit and ability to support multi-media resource based learning (Naidu, 2006:2). It can also provide flexibility for on-campus students (Namibia's ICT Policy for Education: 2).

The Polytechnic of Namibia is one of the tertiary educational institutions in Namibia and is situated in the capital city, Windhoek. It is a dual mode institution with full-time on-campus students and part time students' modes. The distance students are catered for through ten regional centres including Windhoek. The Polytechnic is organized into five schools, namely School of Business and Management, School of Communication, School of Natural Resources and Tourism, School of Engineering, and School of Information Technology. The total student enrolment for 2008 is 8639, of whom 50% are full-time, 29% are part-time and 21% are distance students.

E-learning started at the Polytechnic in 2004 when one of the students in the now Information Technology school conducted research on *Classroom Management Systems suited for Online Learning via Intranet, Extranet, or Internet, and how these technologies can also be applied to support On-Campus training* (Kretzschmar; August 2004). MOODLE an open-source www-based CMS was introduced as a solution. E-learning is currently being offered in the blended mode i.e. face-to-face classes are combined with online sessions in some courses but only for on-campus students.

In 2005, the Polytechnic made a decision to institutionalize e-learning. Responsibility for e-learning was assigned to one of the professional centres, the Centre for Teaching and Learning (CTL). The Academic Support Officer at CTL oversees the e-learning activities. The CTL works together with an e-learning committee with representatives from all the five schools, library, and distance centre called Centre for Open and Life Long Learning (COLL) and the Bureau of Computer Services (BCS). This committee does not have any decision-making power but makes recommendations to the Senate for the approval of decisions regarding e-learning in the institution. The task of creating an e-learning policy and implementation plan which is still in process was handed to the CTL, with the e-learning committee tasked to review it and make its recommendations to the Senate.

In 2007 a decision was made to move from MOODLE to KEWL another open-source www-based CMS. This was due to an agreement Polytechnic entered into with other stakeholders to use a common CMS to share resources and streamline training.

In an effort to train faculty to use e-learning in their classes an in-house two month faculty training program was launched in 2007. This training caters for faculty with little or no experience in using a CMS. For faculty with more experience two-hour training is offered to learn KEWL. User and technical support is provided by a team comprised of two members. Training and user support is provided by the Academic Support Officer. Technical support and system administration is provided by the

System Administrator from BCS.

Though positive strides have been made there are still problems which affect the effective implementation of e-learning. Some of the major problems that are still faced are:

- Inadequate facilities and disparities in the allocation of resources between the different schools,
- Inadequate technical support,
- Expensive and insufficient bandwidth,
- Distance students not using the CMS like their on-campus counterparts,
- Resistance from faculty to use the CMS,
- Lack of an e-learning policy and implementation plan.

This study was conducted to address these problems and provide recommendations to the management on how best to solve them.

Population

The target group for this study was the full time faculty. The rationale for focusing on faculty was that they are one of the key factors in the successful use of technology in teaching (Spicer, 2003:151). Faculty's support is needed if the Polytechnic wants to implement e-learning successfully, and the only way to get that support is if faculty members see the benefits of using technology in their teaching (Bates, 2000:95).

Methodology

This questionnaire-based study explored the experience of faculty who were already using e-learning. The questionnaire also invited the faculty members who were not using technology in their courses to offer reasons for this, and to indicate what incentives might persuade them to do so.

The survey explored the following areas: faculty's experience, concerns and expectations regarding the use of e-learning in their teaching; the type of recognition, support and incentives faculty expect from the management for the use of e-learning; current usage of e-learning by faculty and strengths and weaknesses of that usage and needs of the non-users in the faculty to start using the e-learning for their courses

The questionnaire comprised of yes/no questions, open ended questions and questions delivered on a Likert-scale. An attempt was made to collect both quantitative and qualitative information from the respondents.

Results of the Study and Discussion

Of the 186 faculty members, 76 responded to the questionnaire, giving a 40% response rate. Among the 76 who responded, 26 were e-learning users (34%) and 50 were non-users (66%). Though the response rate was not very high, responses were received from every department in all the five schools, with the exception only of the media technology department, whose members do not use e-learning.

Following is a discussion of the findings organized by various themes. Each theme is discussed in the context of the literature related to effective implementation of e-learning.

Users and non-Users of e-learning compared with student numbers per school

The respondents from the different schools were divided into users and non-users. The total number of students per school is also indicated in Table 1. As per Table 1 none of the respondents from the Business and Management school were using e-learning at the time of the survey. This should be a cause for concern, since over 70% of the Polytechnic's entire student population is in the School of Business and Management. Also the highest number of e-learning users according to this survey was found in the School of Communication, a school with the lowest proportion of students (3%). This shows that current usage of e-learning in the institution has created a digital divide of access and participation within the institution

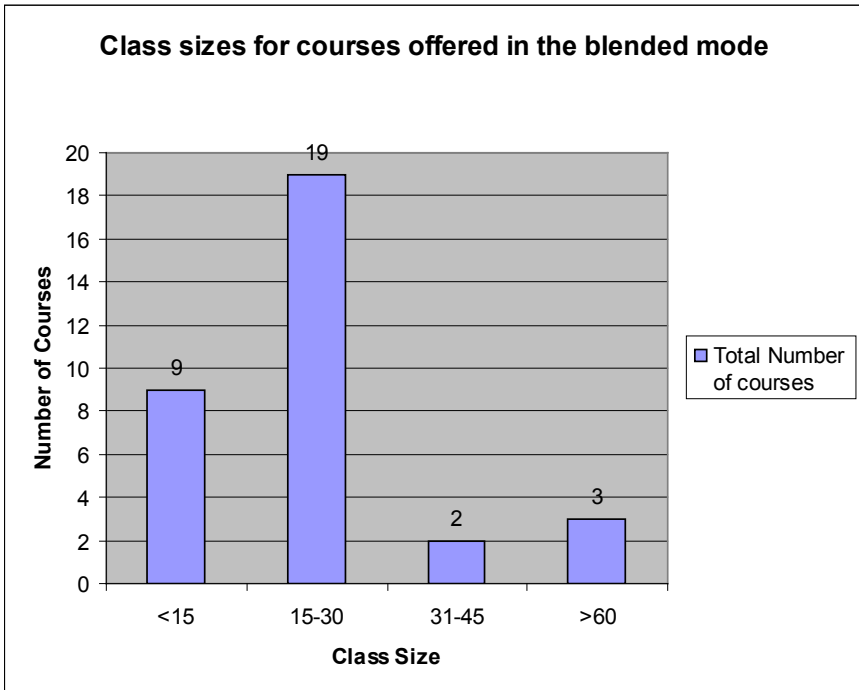
Name of School	Total Number of faculty per school	Total number of students per school	% of total student population	Number of respondents	% of total	Users	%	Non-users	%
Business and Management	53	6122	71	20	26	0	0	20	40
Natural Resources and Tourism	40	796	9	12	16	11	42	1	2
Engineering	40	757	9	17	22	5	19	12	24
Information Technology	25	659	8	9	12	4	15	5	10
Communication	28	216	3	17	22	5	19	12	24
Anonymous	n/a	n/a	n/a	1	1	1	4	0	0
Sub-Total	186	8550		76		26		50	
Office of the Rector (students for special courses) Office of the Registrar (students for non-degree registrations)	n/a	89	1	n/a	n/a	n/a		n/a	n/a
Total	186	8639		76		26		50	

Table 1: Comparison between faculty who use e-learning per school and number of students per school

This disparity could be due to large class sizes and inadequate facilities. When users of e-learning were asked about their class sizes, it was noted that though there is an increase in the use of e-learning, e-learning is mainly used in class sizes of 15-30, see Chart 1 below.

One person indicated (not shown in the table because that was not a range provided) that s\he had 15-45 in his/her course). Business school courses have over 100 students per class with one lecturer and no tutorial support.

Chart 1: Comparison between class sizes and number of courses



According to data obtained from the Bureau of Computer Services last year via e-mail (28/06/2007) the school of Business and Management has only two laboratories and the School of Communication has six laboratories. The resources have been allocated this way because the School of Business and Management has most classes in the lecture halls.

All schools should have adequate facilities for e-learning to be successfully implemented. With the current situation e-learning does not benefit all students equally, placing students in the Business and Management school at a disadvantage compared to the others. According to Moja and Cloete (2001), “the choice of investing in a few areas and in a few departments or institutes must be confronted (p.13)”. E-learning cannot be successful unless all faculty and all students benefit from it equally.



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Courses which have over 100 students have to be broken into smaller groups and tutors have to be appointed to tutor the online sessions without which students will not benefit from this type of learning. Quality learning can only be provided best with a tutor to student ratio of between 1:15 and 1:20 (Nichols, 2001:228).

Adequate facilities and human resources are a must for e-learning to be effective. From these results it is evident that Polytechnic will have to invest heavily before they will be able to reap the benefits of this mode of teaching and learning. . Providing education via technology is very expensive (Rumble 2001:12) and if there are no economies of scale then it would not be a cost-effective solution for the institution (Nichols, 2001:228). This means that a business plan or feasibility study has to be drafted to investigate whether e-learning would be a cost-effective option for teaching and learning for Polytechnic

Continuity and increase in using e-learning

Out of the 25 user respondents, four had been using this technology for the past four years, but there had been an increase in usage overall, since ten of the respondents (40%) were new users.

All the respondents indicated that they would continue to use it. None had started to use technology and then discontinued this use, which indicates that they do see the benefit of technology use.

They were also asked if they would add more courses in the years to come. Out of the 26 respondents, 18 (69%) indicated that they would add more courses and eight (the eight people who answered this question are not the same who answered that they did not received any training in the previous question) admitted that they would not.

Of the 18, 10 indicated they would add one course, four people indicated adding two courses and one person indicated adding three course next year. Two people indicated they will add more than three courses next year. This is an indication of continuity.

Of the eight people who indicated they would not add courses, two gave “no time” as the reason and another two gave the reason that “it does not work for my courses”.

These two responses need to be given consideration because it means that faculty who are willing but are overwhelmed with their work need to be given relief time. The relief time will allow faculty to reflect on course improvements and educational research with regard to e-learning (Nichols, 2001, p: 231).

While it is true that a CMS may not be suitable for all courses care must be taken to ensure that faculty make those decisions only after consultation. This means training should not just focus on using the CMS but also sharing of ideas and experiences among faculty (Nichols, 2001: 232). According to Thomas (2008), “Lecturers, being adults, must have strong reasons to change their long-embraced traditional pedagogical practices (p.120)”. This can be facilitated by having sessions that “focus on making them understand the new roles of academics in today’s digital age” (Thomas, 2008:121).

Benefit of this technology

Out of the 26 user respondents, 23 (88%) indicated that they found e-learning useful

for their teaching. One person indicated yes and no, and gave “teething problems are frustrating” as a reason. One person indicated no but did not provide a reason as to why s/he did not find it useful.

The benefits they noticed were:

- *Provision of study materials/lecture notes and resources outside the classroom (6 responses)*
- *Independent Learning (2 responses)*
- *Manage course more efficiently (2 responses)*
- *Improved Learning and motivation for learning (8 responses)*
- *Improved teaching (2 responses)*

One of the faculty members on improvement in learning and motivation for learning commented:

“I could make my students do a lot of writing which would not have been possible in a regular class. They had an opportunity to do internet research which I think is very useful so that they learn to look for information on the web”.

Another faculty member felt that e-learning brought an improvement in the way teaching was done:

“It introduced new perspectives, encouraged student-centred learning and challenged my views about teaching-learning.”

Out of the 40 non-user respondents, no-one agreed that e-learning technology had no benefit, with 37 (93%) disagreeing with this statement. This is an indication that despite the fact that they don't use it, they do see the benefit of e-learning in their courses.

Improvement in learning outcomes

They were also asked to assess where there was an improvement in the learning outcomes when using blended learning compared to exclusively face-to-face classes.

Out of the 22 user respondents, 13 agreed and five disagreed that their students showed improvement. Though only two options were given for this question (yes and no), 4 indicated they were not sure. Some of the reasons given for not being sure were:

- *Too difficult to say at this stage*
- *I don't know as we are using this course for the first time*
- *I don't know how it would have been without it, so I can't make a statement*
- *Too soon to tell*

Earlier on faculty claimed to see the benefits of e-learning but in this question they were unable to pinpoint the improvement in learning outcomes. This is an indication of the lack of monitoring and evaluation system for courses running on the CMS. This is also another area which needs to be incorporated into the training program.

Quality of User and Technical Support

Technical support only had 21 responses compared to the 25 responses for user support. Of the 21 people who rated technical support, four disagreed that it was adequate, with six undecided and 11 people who agreed that it was adequate.

Of the 25 people who rated user support, four disagreed that it was adequate, four were undecided and 17 agreed that it was adequate.

A comparison was made to see which type of support fared better and according to the data below in Table 2 user support was equal or better than technical support.

Type of support					
Technical Support			6		
User Support			4		

Table 2: Satisfaction with support systems in the institution

In the open-ended questions, faculty members requested more and better technical support along with better connectivity especially in the labs for the students. One of the comments a faculty member made with regard to technical support and internet connectivity in the labs was:

More computer labs with better Internet access (current slow internet demotivates students); Technicians and facilitator allocated to departments specifically for this purpose

This is not an aspect that should be underestimated because reliable infrastructure is a very expensive yet important aspect of e-learning without which it will not succeed (Mutula, 2003:12). A 24-hour help desk will have to form part of this technical support. Reliable technical support is needed during class time and when faculty and staff work on their own.

According to Thomas (2008), “Continuing, professional support with emphasis on informal, personalized assistance especially after initial training and follow-up mechanisms are essential (p: 121)”. Without regular follow up and support faculty will not be able to effectively use e-learning.

Support of the idea of e-learning at the Polytechnic

Faculty in general were very supportive of the idea of having e-learning in the institution, with 33 (83%) agreeing that their course would benefit from e-learning compared with just 7 disagreeing.

Courses which have over 100 students have to be broken into smaller groups and tutors have to be appointed to tutor the online sessions without which students will not benefit from this type of learning. Quality learning can only be provided best with a tutor to student ratio of between 1:15 and 1:20 (Nichols, 2001:228).

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A comparison was made to see which type of support fared better and according to the data below in Table 2 user support was equal or better than technical support.

Type of support	strongly disagree	disagree	undecided	agree	strongly agree
Technical Support	2	2	6	8	3
User Support	2	2	4	14	3

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According to Thomas (2008), "Continuing, professional support with emphasis on informal, personalized assistance especially after initial training and follow-up mechanisms are essential (p: 121)". Without regular follow up and support faculty will not be able to effectively use e-learning.

Support of the idea of e-learning at the Polytechnic

Faculty in general were very supportive of the idea of having e-learning in the institution, with 33 (83%) agreeing that their course would benefit from e-learning compared with just 7 disagreeing.

One of the positive comments the faculty made with regard to having e-learning in the institution are:

I support the initiative and believe it is a step in the right direction

One faculty members commented on the support to idea of e-learning but did not think it was suitable for all their courses:

E-learning like all other methods has a place and situation where it fits e.g. distance education. E-learning is not the ultimate method to aspire to. In our department we work with small groups and are in close contact with our students at all times. Practical, career oriented, hands-on learning are more appropriate. We do use e-mails to communicate with in-service training.

The results of this study show that the faculty in general are in favour of using e-learning and do see its benefits even if not all use it. This study tried to uncover what the hindrances were. The main hindrances are discussed in the following sections.

Role of workload reduction in using e-learning

23 out of the 24 user respondents (96%) indicated that they received no reduction in their workload to use e-learning with only one indicating a reduction in the workload. One person indicated the possibility of reduction after some time.

When it came to reduction in the workload, 26 of the 41 non-user respondents (63%), felt it was needed for them to use e-learning compared to the six who disagreed.

On the issue of workload some of the comments faculty made were:

- *Provisions have to be made in the workload policy; not because of more money to be paid, but in order to allow time for preparing e-learning offerings.*

- *It takes time to learn, perfect and use e-learning. It takes time to prepare appropriate materials for e-learning. Thus, the Polytechnic has to review its workload policy (of 16 hours per week) to allow for more academic ventures like e-learning. If I have to teach 16 hours a week where some of the classes are over 150 students, when do I mark their assessments and still have time for e-learning!*

The results in this section are a clear indication of why e-learning is still used by a small group. None of the respondents who use e-learning reported receiving any workload reduction for using technology in teaching. In such a case only pioneers will be willing to use technology because they have a "high personal engagement level, high expectation of educational learning effect and are likely to push on despite a weak ease-of-use situation" (Collis and Moonen, 2001:57).

If the rest of the faculty must use technology, they will need to be provided with incentives. Rewarding faculty for using e-learning is vital in the successful implementation of e-learning (Collis and Moonen, 2001: 62). According to the results of this study, a workload reduction will encourage more of the faculty to use e-learning and this needs to be incorporated into the workload policy.

Role of promotion in using e-learning

Out of the 25 user respondents for the promotion question, 14 (56%) indicated that they were not eligible for promotion for being innovative in their teaching. One person said "never heard of such a regulation at the PON". One person indicated no and stated "not yet, need more experience".

When it came to the assurances of promotion, only seven out of the 41 non-user respondents agreed that this would be a factor with them choosing to use e-learning. 28 of the respondents (68%) felt assurances of promotion were not a major factor in them using e-learning.

Role of pay raise in using e-learning

Out of the 24 user respondents, 14 indicated they were not eligible for a pay raise, two indicated that they were eligible for promotion and eight indicated that they did not know.

As to the question about needing a pay raise as an incentive to use e-learning, only seven out of the 40 non-user respondents felt this would be a crucial factor. 27 of the respondents (68%) disagreed that assurances of a pay raise would encourage the use of e-learning.

Faculty's choice of Incentives

Three possible incentives to use e-technology were mentioned: a pay raise, a reduction in workload and a promotion. This was analysed individually and collectively for the non-users to identify the best incentive. The results according to Table 3 show that a reduction in workload was preferred over a promotion or pay raise:

Factors	Respondents
Reduction in workload	16 agreed and 19 strongly agreed
Promotion	Four strongly agreed and two agreed
Pay Raise	Five agreed and two strongly agreed

Table 3: Comparison of factors to encourage the use of e-learning

Workload is obviously a major source of concern for the faculty. Faculty are aware that using e-learning will increase their workload, and for non-users this is a major deterrent to using the CMS.

Needs of the non-users in the faculty to start using the e-learning for their courses

Lack of time to learn/upgrade, work reduction, promotion, pay raise, students accessibility, course will not benefit, lack of confidence and lack of training were presented as possible factors of hindrance to using e-learning for their courses:

Out of the 41 respondents, 11 agreed they did not have enough time to learn how to use the technology or how to upgrade their knowledge, compared with 23 that disagreed.

As 23 disagreed that time was not a factor, this response was compared to the other factors such as workload reduction, assurances of promotion and pay raise, students accessibility to computers, benefit of using this technology for their course(s) and lack of confidence and training.

The results shown below in Table 4 indicate that students' accessibility and work reduction are the major deterrents.

Factors	Respondents	Total
Students accessibility	Four strongly agreed and 12 agreed	16
Work reduction	Five strongly agreed and seven agreed	12
Lack of confidence	Two strongly agreed and Three agreed	5

Lack of training	Two strongly agreed and one agreed	3
Promotion	Two agreed and one strongly agreed	3
Pay raise	Three agreed	3
Course will not benefit	Two felt that their course would not benefit from using e-learning	2

Table 4: Factors other than time that influence the take-up or non-use of e-learning

One faculty member with regard to hindrances mentioned:

All the students need access to computers. The numbers registered makes this not feasible Accounting is a practical course and depends heavily on case studies and exercises. It will require a dedicated specialist to prepare study material suitable for e-learning.

Time and Role of Training

For users of the technology, training was beneficial but felt the timing was not convenient as evidenced by these comments:

Definitely a training programme that is realistic in terms of the current workload

Training for non-users was also mentioned as an encouragement for using e-learning:

I would like to receive training on how to use e-learning, because I would really love to use it but the problem is that I have got no idea as to how it is used.

When faculty were asked what they felt was needed with regard to training to encourage them to continue to use the system, one of the responses given were:

More discussions should occur about how lecturers should integrate the system into their teaching or how it can encourage critical thinking

Some felt the training was not enough as shown by this faculty member’s comment:

When such a technology is introduced time must be allowed for staff to learn how to use the technology effectively

This is an indication of the need to look at the type of trainings offered and the timing of the training. More and varied types of training are definitely needed. One way to encourage faculty to attend trainings would be to reduce their workload or give them

time off to attend the trainings offered.

Distance education students and e-learning

With regard to using e-learning for distance education the faculty shared the following concerns:

- *Lack of facilities and time for part time and distance students*
- *It will be difficult for DE students to do e-learning due to lack of resources, only some can do it.*
- *The logistics of trying to get COLL tutors, who are outside people, to do what F/M lecturers are doing are a little difficult. We are also not too sure of how many distance students really have access to computers and the internet*

For distance students, study centres needs to have working computers, with technicians on stand by and reliable connectivity. This may still not be sufficient for students who live far from centres or who need to study in their own time which could be after the centre closes. A better way would be to provide computers to students on a “on a loaned basis, under strict conditions and the payment of a (refundable) loan or purchase of a second-hand computer on discount” (Nichols, 2001: 210). This could be an option offered to on-campus students also.

Management's commitment to e-learning

With regard to the management's role and commitment faculty felt they needed more support and involvement. Below are some of the comments:

- *At the moment the whole e-learning issue seems to be one of ‘window dressing’ as far as management is concerned. If they want lecturers to become more involved in it they need to take our problems seriously and try to address them.*
- *The institution should recognise the work done by staff and support them in the interest of education.*

Management are key players in driving e-learning forward in an institution and their role in the successful implementation cannot be over emphasised. Clear vision and direction in the form of goals are needed in the policy to provide guidance in the implementation process (Bates, 2000:43). The vision must be clearly communicated to the faculty by the management and the goals must be clear and measurable without which it “will be difficult to steer and success difficult to claim” (Collis and Moonen, 2001: 14). This would also ensure a critical mass movement towards e-learning.

Concluding Thoughts

Due to the low response rate, the results cannot be generalized to the rest of the faculty but the findings together with literature on this subject provide a starting point on how to successfully implement e-learning in the institution.

In order to successfully implement e-learning there must be adequate and reliable infrastructure and support systems, course materials have to be re-designed to adapt to the blended model of learning, online tutorial support needs to be and the

CMS needs to be integrated with the administrative systems of the institution. The whole process needs to be spearheaded by a project management team with both technical and pedagogical skills.

It is important to keep in mind that though there are pressures to adopt e-learning to be competitive (Collis and Moonen, 2001:31) and provide flexible education to create mass skilled workers (Cross and Adam, 2007:8) this has to be applied in the Namibian context of development. Namibia is a country ridden with inequalities, thus the technology used to offer education must reduce the inequalities and not increase them. E-learning is currently being introduced in a setup where students don't own computers, have regular and reliable access to the Internet and expensive telecommunication costs. Distance education is currently offered using print to increase access as much as possible; one should be careful that e-learning does not decrease this access and make education unaffordable to students. Innovation and flexibility should not take precedence over accessibility otherwise we will fail to provide the education that will benefit all the Namibians.

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