# Open Educational Resources and the Opportunities for Expanding Open and Distance Learning (OERS-ODL)

http://dx.doi.org/10.3991/ijet.v8i2.2312

J. Egan[1], T. Frindt[2], and J. Mbale[2]
[1] I-TECH, Namibia
[2] University of Namibia, Windhoek, Namibia

***Abstract*—Distance learning (DL) was a teaching modality which utilized technology to deliver teaching to students who were not physically present such as in a traditional classroom setting. DL was not constrained by geographic considerations and therefore offered unique opportunities to expand educational access. The University of Namibia (UNAM) and International Training and Education Center for Health (I-TECH) partnered to examine DL at UNAM, to assess strengths and weaknesses, and to make recommendations for improvement. The primary method used in this assessment was interviews with staff at centers and units engaged in Distance Learning at UNAM. It was analyzed how interactions vary between instructor and learner, among learners, and between learners and learning resources. DL at UNAM was categorized into five approaches including: 1) Outreach, 2) Print-based, 3) Computer based, 4) Internet-based, and 5) Digital Video Conferencing (DVC). All-in-all, a strategy of "starting small" was envisaged to allow individual instructors to voluntarily use collaborative software such as Google Groups to enhance print-based instruction and progressively expand DL at UNAM.**

***Index Terms*—Distant learning (DL), digital video conference (DVC), Google Groups, starting small.**

## I. INTRODUCTION

Distant Learning (DL) is a field of education that focuses on teaching methods and technology with the aim of delivering education, often on an individual basis, to students who are not physically present in a traditional setting such as a classroom. To understand its position in a university it is worthwhile to examine how education has evolved.

### *A. The Education Components of a Modern University*

Education offered by modern universities consists of four components which have emerged in the following order:

1. Full-time programs offered in class room facilities [1],
2. Part-time programs in the same facilities but offered during extended hours [2],
3. Print-based courses extending educational opportunities beyond the campus and [3].

Each method can be viewed as a logical extension over the previous ones. All of these components build upon each other and strive to increase enrollments; to optimize the use of existing facilities to extend the reach of education; and to provide opportunities for citizens to continue their education. The first three components are well-developed at UNAM. The fourth, e-Learning, is not as mature and is the main focus of this report.

### *B. Distance Learning*

Number Approaches to DL can be classified into a hierarchy consisting of five levels in which each level increases in technical sophistication:

1. Outreach:
2. Print-based/Open Distance Learning
3. Computer-based
4. Internet-based:
5. Digital Video Conferencing (DVC)

Ordinarily **outreach** (Level 1) is considered traditional education because it involves face-to-face classes. However, it also involves traveling over large distances which may entail a significant level of additional expense and inconvenience to the lecturer.

A **print-based** course (Level 2) consists of sending printed materials either by mail to individuals or by courier to remote centers or campuses for distribution. Interaction between students and instructors are carried out by mail, telephone or e-mail. At UNAM, this form of education is referred to as Open and Distance Learning (ODL).

**Computer-based** (Level 3) DL usually requires a computer (but not necessarily the Internet) to make use of supplementary learning materials such as interactive DVDs, memory sticks and other multimedia products.

**Internet-based** (Level 4) DL may consist of "live" Web seminars "Webinars" in which students and presenter are at different locations but are engaged at the same time. Alternately, internet-based DL may be self-paced "not live" in which students and instructor interact at different times and places. In this case, a Website with appropriate courseware would contain posted lessons, academic materials and assignments. Interactions between students, instructors and materials occur mainly through the Internet.

**Digital Videoconferencing (DVC)** (Level 5) offers DL through video/audio conferencing which may involve interactions between two or more sites and could also use satellite, radio or TV broadcasts.

All levels five levels of distance learning approaches have been found to exist at UNAM at one time or another.

A specific program may draw from more than one level of DL, in which case it is referred to as "blended". For example, a course offered through the Center for External Studies (CES) will primarily use print-based materials (Level 2), but may use computer-based DVDs (Level 3) and on occasion may even employ videoconferencing (Level 5) to reach distant learners.

E-Learning, in which technology enhances Learning opportunities, references Levels 4. Certain aspects of e-Learning can provide benefits that strengthen paper-based offerings. For instance, in a paper-based course, communications between student and instructor as well as among students and their materials often suffer due to geographic isolation, slow postal services and non-school related obligations. In addition, the production of paper materials and their distribution can be costly. E-learning can strengthen these ties through the Internet which can provide a speedy and efficient way to distribute educational materials.

### *C. Learning Taxonomy*

Figure 1 illustrate the eLearning Taxonomy. A closer look at e-Learning tells us that there are various types of technology-enhanced education but each fall into either one of two categories-self-paced (asynchronous) or live (synchronous) depending on whether the tutor and the student interactions occur at different times and places; or if they must occur at the same time though they may be geographically separated.

Each of the types have their own particular technical as well as instructional design requirements and these could substantially differ. For example, computer-based learning requires access to a computer (technical) and the lessons may be designed to contain interactive multimedia formats (content) while live DVC conferences may require sophisticated camera systems and a studio-like environment (technical), while the lesson content could be presented through PowerPoint slides, flipcharts, DVD videos, etc.

## II. ACADEMIC INTERACTION

In some ways, education can be described in terms of a set of interactions as shown in the model depicted in Figure 2.

The students must interact with the material to study and learn from it. The instructor must also interact with the material keeping it up to date, to insure its quality and to guarantee a rigorous learning experience. But the students must also interact with the instructor, to obtain guidance, information and feedback. Furthermore, as the student learns: the instructor also learns from interactions with the students. To summarize the following interactions can be observed.

1. Instructor and the material
2. Students and the material
3. Students and instructor
4. Students with other students

The question is: How do these interactions vary as we progress from full-time education to e-learning?

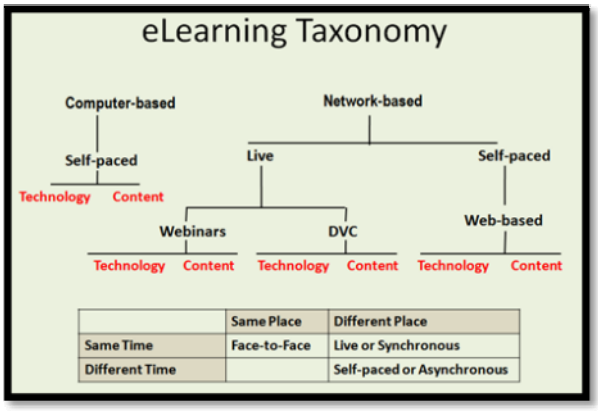


Figure 1. Organisation of eLearning

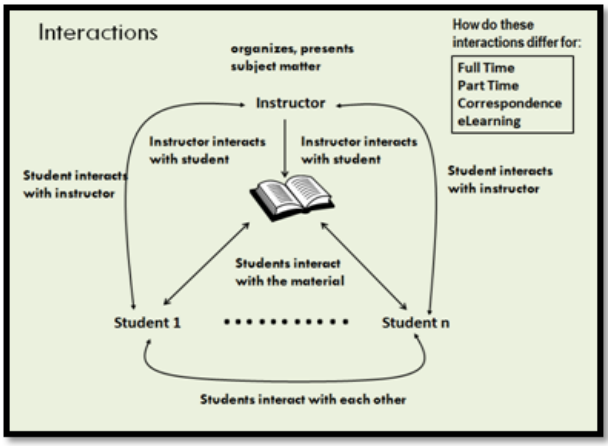


Figure 2. Learning interactions

TABLE I.
AN ASSESSMENT OF THE VARIOUS IN THE STRENGTH OF LEARNING INTERACTIONS

| INTERACTION | FULL-TIME | PART-TIME | PRINT-BASED | ELEARNING |
|---|---|---|---|---|
| Instructor-Material | Strong | Strong | Fair | Strong |
| Instructor-Student | Strong | Adequate | Weak | Adequate |
| Student-Student | Strong | Adequate | Weak | Adequate |
| Student-material | Strong | Strong | Fair | Strong |

## III. ANALYSIS

The strengths of the interactions are shown in Table I or each of the educational modalities offered by a modern university. The table examines the four components of a modern university system and assesses the strength of each one.

We must concede that nothing beats a full-time (face-to-face) education. Students and instructors are immersed in a common learning environment. They interact both formally and informally. Students interact with each other in clubs, study groups and socially. The instructor interacts with his material on the blackboard/whiteboard, through daily handouts and presentation materials. The students take notes, and have access to a wide range of library materials during the best hours and can directly ask questions.

A part-time education may provide access to the same resources and even, in some cases, the same instructors. But there is a weakening of the interactions between the instructor and student due to the student being off campus during regular hours. The student formally interacts with the instructor during class and during office hours. Because many students work full-time, they are also less likely to mingle after a class which could end as late as 10PM.

Print-based ODL courses offer the student schedule flexibility and a chance to learn away from campus. However, once the material is delivered, the content remains static and cannot be easily modified or enhanced. The student-instructor interaction usually occurs by way of mail or telephone, or in some cases E-mail. In most cases, there is virtually no student to student interactions. Instructor feedback is also problematic. There have been cases where grades were not posted in a timely manner.

E-Learning can improve ODL courses by permitting the instructor to quickly distribute additional materials through the Internet, provide feedback, improve interactions with students through chat, group E-mail, and bolster student to student interactions by establishing discussion forums, group projects and bulk E-mail deliveries.

## IV. STATEMENT OF THE PROBLEM

Because print-based offerings are well-established, an effective way to widen the use of e-Learning methods would be to "start small", by adapting certain features of e-Learning which promote stronger interactions between students, instructors and materials to enhance print-based offerings but which does not impose any redesign of materials or an additional teaching burden on the instructor. In this way, e-Learning might be gradually introduced into distance curricula.

We are working on a pilot program to introduce specific aspects of eLearning into an Masters in Public Health (MPH) program at UNAM. An instructor who teaches a course in epidemiology has allowed us to pilot some techniques in a part of his course that teaches strategic information. The pilot introduces the use of Google groups and a Google site to support the academic interactions. The concept is shown in figure 3 indications are that ,after a slow start, the student interactions have increased at least four-fold since the beginning of the course. But what may be more significant, the students have formed online groups and have successfully completed assigned projects. Should this success continue, then guidelines will be drawn from the lessons learned, and used in subsequent trainings.

We also wish to use eLearning strategically to gradually increase the number of practitioners of e-Learning especially in print-based courses where student isolation and minimal interactions could affect the academic interactions. We will begin by offering hands-on workshops at the beginning of each academic period, limiting each workshop to a small number of UNAM instructors (perhaps no more than six). Partcipation will be completely voluntary. The practitioners will actually build a Google group and a Google site that they will, in point of fact, use for their courses. Over time, this might build a community of users willing to experiment with other aspects of technology-enhanced education.

## V. THE OUTLINE OF A LONG TERM STRATEGY FOR E-LEARNING

A successful " starting small " strategy could begin the process of integrating eLearning into the educational process, but without high-level university commitment and an allocation of resources, eLearning will not mature to a level where it becomes a major mode of education To fathom what must be done, it would be useful to understand what organizations are involved in the production of distance learning.

While any of the seven faculties at UNAM may participate in DL, there are five centers/units principally engaged in its production and support: The Interactive Multimedia Unit (IMMU), the Center for External Studies (CES), the Information and Learning Resource Center (ILRC), the Computer Science (CS) Department and the Computer Support Center.

Figure 4 illustrates the areas where each organization has participated.

The participation by a center at a specific level does not mean that they are avid practitioners in that modality, only that some experimentation and usage has been observed.

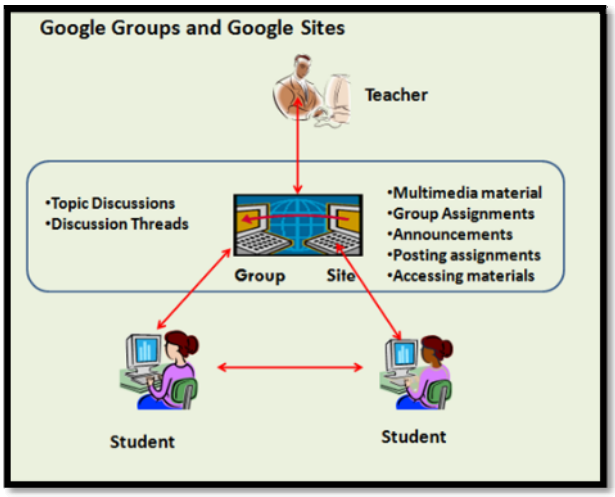


Figure 3. The :starting small" concepy of operations

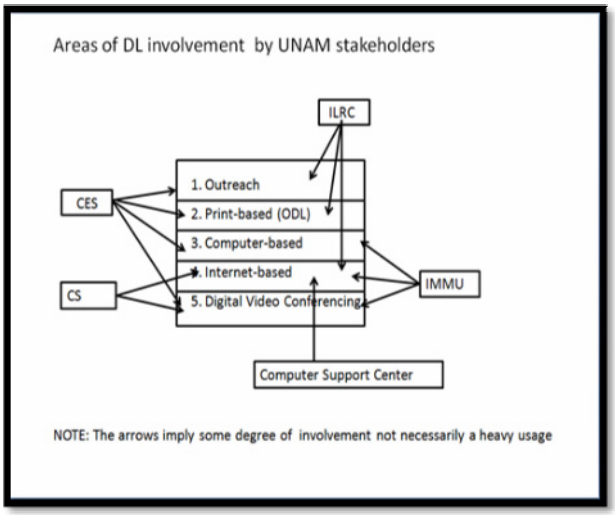


Figure 4. Areas of involvement

## VI. METHODS

The contours of a long-term eLearning strategy are derived from the results acquired during a comprehensive DL survey completed in 2010[5]. The survey consisted of interviews with over forty DL practitioners and providers from seven major faculties at UNAM and five of its campuses. More recently, these findings have been updated by including information from documents provided by the major contributors to DL concerning their strategic plans as well as self-appraisals of their strengths and weaknesses.

The findings uncovered requirements in these areas:

1. Policy and Vision- no high level vision for expanding eLearning
2. Cooperation- splintered efforts exist among the DL providers with some duplication of effort.
3. Infrastructure- local bandwidth and Internet speeds are slow and cannot support Webinars and "live Internet.
4. ICT Training-Some instructors and students are deficient in Basic IT skills
5. Online Services-limited number of digital library resources and online services
6. Incentives-the university does not reward any additional effort to practice eLearning
7. Staffing and Support- the university has no professional eLearning staff
8. Partnerships- need to forge partnerships with other universities and colleges who specialize in technology-enhanced learning.

## VII. POSSIBLE APPROACHES

There are three approaches that could be followed to develop a vigorous eLearning program.

1. The university could tackle each requirement above one at a time. This could be done as funding and resources become available. The down side is that some of these requirements influence each other and synergy might be lost. For example, the availability of digital library resources may drive the requirement for ultimate bandwidth speeds.
2. An individual school such as the School of Public Health could independently decide to offer courses on line even expanding beyond the borders of Namibia to regional or even a global constituency. Such is the approach taken by the School of Public Health (SOPH) [6] at the University of the Western Cape. But this would be unlikely to work at UNAM in the near-term as it would require significant budget increase, require the recruitment of a professional staff to support eLearning, and any success would not necessary provide any major benefits to the rest of the university.
3. A center of excellence (COE) could be formed and initially its complement could be comprised of current university faculty who might be assigned through dual appointments, but as the center matures it will need its own staff of eLearning specialists comprised of a director who can guide the efforts of the center and can create an atmosphere of innovation. Among its membership would be individuals with expertise in the areas of educational technology, learning theory, learning platforms, courseware (print-based) development, instructional design and academic support. Additionally it would require the participation of a librarian skilled in the management of digital resources and capable of providing online support. The structure of a COE dedicated to technology-enhanced education is given in figure 5 displays the inputs, the type of functionality that it would provide and suggests at how it could address the requirements (outputs).

## VIII. CONCLUSION

In some respects, eLearning, is just beginning at UNAM with no specific plan defined for its progression or the technical infrastructure to support a full range of services.

In particular, we recommended a near-term strategy of "starting small" for how e-Learning can be used to enhance existing print-based offerings while simultaneously limiting the impact on existing course design, materials and instructors. While it offers a near-term strategy for introducing e-Learning, starting small does not address a long-term, integrated e-Learning strategy capable of reaping great benefits for the University. By integrating the splintered efforts of key organizations through the formation of a center of excellence, by employing a professional e-Learning staff, by increasing the quality of the University's technical infrastructure, by enhancing online library services and digital collections, and by finding ways to incentivize faculty to participate in e-Learning, many advantages could be realized.

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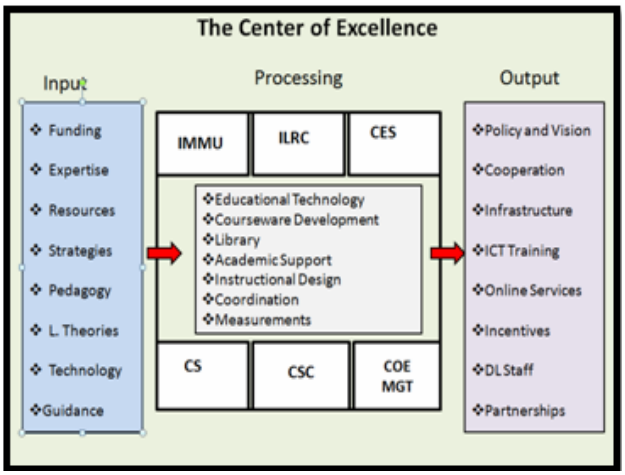


Figure 5. The structure of a hypothetical CoE at UNAM

AUTHORS

**J. Mbale** is with the University of Namibia, Centre of Excellence in Telecommunications (CoE), Department of Computer Science, Private Bag 13301, Windhoek, Namibia (e-mail: mbalej@yahoo.com).

**J. Egan** I-TECH.

**T. Frindt** is with the University of Namibia, Centre of External Studies, Bag 13301, Windhoek, Namibia.

This work was supported in part by I-TECH and University of Namibia. Received 17 October 2012. Published as resubmitted by the authors 25 April 2013.