

STUDY ON E-LEARNING EFFECTIVENESS AND OUTCOMES

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Abstract

Technology has redefined the way people live, eat, walk, and talk. Until now, we have technology manifesting itself in the domains of nearly every sector. From manufacturing to chemical, industrial, healthcare, and retail, technology has its hands everywhere. Amongst all, one sector that is steadily catching the attention is Education. Technology has done a commendable job to transform the existing ecosystem, its implications in the Educational background is expected to revolutionize the training models of education, restructure the tools and resources, in a way benefitting both the students and the instructors.

This paper has been meticulously researched and designed to outline the effectiveness and the outcomes of fusing technology in the learning industry. It would also uncover the impact such a system would have on the society, locally as well as globally.

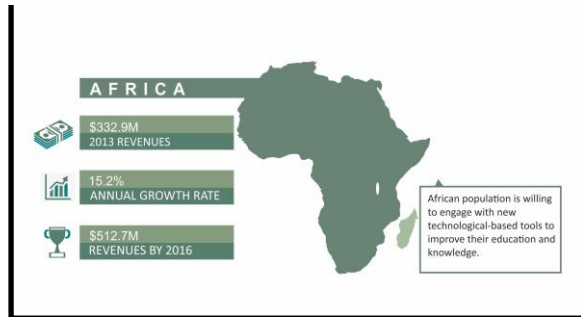
Keywords: eLearning in education, Formal Learning, Informal Learning, Technologies for e-learning, E-learning methodologies, Effectiveness Of E-Learning.

1. INTRODUCTION

Over the decade, technology has drastically changed the world and, indeed, the existing education system. In particular, advances in wireless internet and portable devices have allowed 'students to be more flexible as to the time and place of learning in ways that were unimaginable ten years from now' (Shabha 2000). [1]

Such a transition is what we refer to as e-Learning. It can be regarded as a network of networks destined to share skills and impart knowledge to all across the globe. The concept of eLearning might sound outlandish, but in reality, it is a means to shed the classroom only form of education.

Resources suggest that the student base of such learning would increase by eightfold in 2021, crossing the mark of 9.6 million users. [2] Enough shreds of evidence suggest that these figures are only going to rise in the near future, thanks to the series of the impact it has on a different segment. Also, the **African market** has earned a revenue of \$512.7 million in eLearning.



[Source](#)

2. CATEGORIES OF ELEARNING

2.1 Formal Learning

The first form of eLearning includes course material. It is one of the common trends these days to attach different files and media and then upload the same over the web for ease of access. WebCT and Blackboard are two of the most popular LMS available over the internet. Often, these courses entail video lectures that are similar to classroom teaching with an instructor and the student—researchers today design alluring courses, embedding a range of educational technologies to improvise the learning experience.

2. Integrated or Blended Learning

The next category, as the name suggests, is more personalized. It is a face to face sort of training, which also includes course materials for additional information. This form of eLearning comprises different kinds of deliverables as the face to face instructions, web-driven courses, collaboration software, and practice set for better knowledge.

3. Informal Learning

Informal learning is one that each and every student must have done once in a lifetime. It means using information present over the web to gain knowledge. Search engine platforms such as Google, along with information tools such as Flurl is the most widely used platforms for informal learning.

4. Knowledge Management

Outreaching to a wider audience base is what the eLearning technology is all about. While earlier knowledge management was limited to yellow pages, today, the domain has semantically grown to reach a more extensive user base. It helps in the creation of an atmosphere where people can effectively collaborate and share knowledge.

3. IMPACT OF EDUCATION TECHNOLOGIES IN E-LEARNING

Though eLearning might relatively be a new concept, the technologies used to back the same, are decade old. Migrating from dedicated classrooms to an open-minded learning portal is what drives researchers to study different techniques and their implications. Before we set our eye on the outcomes, it is essential to have a look at the various technologies that are or can be used for eLearning.

1. Augmented Reality:

Engaging and interactive experience, manifesting objects in real-time, the technology of AR has been a hot topic. The only difference being in the industry here. From learning abstract models to 3D figures, the entrance of augmented reality in the sector or education is a table turner. Students can now have a visual experience instead of digging their imagination to see how the figure looks. Pretty easy to guess that such a form of education is easier to grasp and understand.

2. Artificial Intelligence:

Though most of us have had the face-off with AI tools and technologies, deploying the same for eLearning is a different experience. The technology excels in providing rich personalization, enabling students to find course materials, based on their interests and preferences. It is a replacement of the age-old try it your way method and adopts a student-only approach to study them and find out their pain points. Also, the inception of AI in eLearning allows students to know areas they are good at and base their decisions on the same.

3.3 Learning Management System:

LMS is a sort of course management portal where students can add courses, track their performance, and study the way they want. LMS, is in fact, one of the best ways to impart knowledge and course materials to students. Such platforms also have a live support desk where students can talk about their problems and get their issues addressed. An excellent place to get this done is via distance learning.

4. Internet of Things:

With distant learning, there always arises a question of doubt. Students aren't in contact with the professors or the course instructors, and this affects the quality of education rendered. This is where the idea of IoT pops in. The technology that facilitated connectivity, IoT devices help in the creation of a network of students and professors so that they can interact on a regular basis and, at large, remain informed.

5. Mobile Learning:

As users go mobile, they expect apps or platforms that are mobile compatible and support the same. This not only adds flexibility in the way education is imparted but also widens the reach of educational material and resources.

4. E-LEARNING OUTCOMES

The proliferation of eLearning has transformed the face of education. Here are some of the stats:

- The overall time taken to run E-Learning classes is reduced by 25-60% shorter as compared to traditional courses.
- Corporations save a minimum of 50-70% on replacing their instructor-based training with e-Learning.
- Knowledge Retention rate has been increased by 25-60%.

STUDENTS	
ADVANTAGES	DISADVANTAGES
Flexibility in learning Complete autonomy Follow-up and self-assessment Management and independence at work	No direct contact with teachers Frequency and distrust in the use of digital and educational tools.
TEACHERS	
ADVANTAGES	DISADVANTAGES
Provide the basic conditions for assessing the level of learners Personal training in the use of digital tools. Flexibility in tables Assist learners directly	Lack of direct contact Multiple procedures to be taken Communications are mostly written Difficulties to control bad activities like cheating
UNIVERSITY	
ADVANTAGES	DISADVANTAGES
Detailed reports Flexible tables Group training (Reducing the numbers of learners) Low educational costs	Fear of some learners Investment in the purchase of technological equipment (computer) Companies have little or no information on e-learning tools. Absence of incentives for some learners

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4.1 E-learning methodologies- Implementation and effectiveness

eLearning leverages the potential of the internet to craft an infrastructure that can seamlessly [\(Source\)](#)

share knowledge. As the number of organizations advance towards the adoption of technology in learning portals there will also be a sharp increase in user expectations. All of these calls for the development of tools and different methodologies to map the growing needs of the user. There are two different methods to implement eLearning in the everyday curriculum.

- Synchronous Learning
- Asynchronous Learning

4.1.1 Synchronous learning is one where the instructor and the learner are both present in front of each other, face to face. It could be either via an IM or say, video chat, virtual classroom, etc., with the point being the presence of both while learning.

4.1.2 Asynchronous Learning does not require the mutual presence of the instructor and the learner

at the same time. This is self-paced learning and can be accessed anywhere anytime. It could be a learning management system or an email; a course link hosted overcloud or webcasting. Each of these are specific to the student and the cause behind it.

Different ways asynchronous learning can be imparted and their effectiveness:

4.2 Self-study

eLearning facilitates an environment where students can study at their own pace. They are not bound in terms of time, area, or location. Instead students can have access to all the material which they can revisit and learn at their own pace. Reports suggest that the overall market value of self-paced learning in the Middle East is \$560.7 million. [4]

4.3 Video Tapes

A common trend these days is the videotapes or the audio files created by the educators enabling students to have an improved grasp of the subject matter without having the need to visit the classroom physically.

4.4 CBTs and WBTs

The computer-based or the web-based training modules are specific course materials that are stored in the cloud, and learners can access these materials by entering the right login credentials. One way to do so is by implementing a learning management system to create courses and then give users access to the same. This is one of the widely used forms of eLearning, with the 2018 market standing of \$7.18 billion.

4.5 Mobile Learning

e-Courses analogous to e-Learning employs a mobile device to interact and engage with all the course materials. As users shift towards a mobile-first economy, e-Learning moves towards the adoption of mobile compatible study materials. Mobile learning is trending, with the revenue figures rising hugely.

4.6 Effectiveness Of E-Learning

To start, there could be loads of effectiveness associated with the concept of eLearning. Right from the flexibility, it provides accessibility and mobility, the online form of education is on the cusp of driving a wedge between the barriers of education.

As far as the above two methods are concerned, effectiveness can be defined in two ways:

1. Students satisfaction
2. Students Performance

eLearning is proven to enhance satisfaction as well as the performance of students dramatically. Intel Corporation (2009) conducted a study on the positive impact of e-learning, and more than 80 % of teachers identified state that students were more actively engaged and involved in their learning. Hence, the hypothesis: E-learning has a positive effect on the student's performance.

ACKNOWLEDGMENTS

Technology in Education or as we generally state, eLearning is augmenting the power of the internet to deliver or impart education to all, irrespective of the geographical boundaries. Such an infrastructure would create not only a new form of learning but also orchestrate an environment where students would have unfettered access to information, for the greater good. And as the piece beautifully portrays the architecture of the technology, it is definite that future education would only get better and brighter, as eLearning methods turn more sophisticated.

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