E-Teaching Concepts

How E-Teaching should be done / What should be taken into consideration

The lecturer should be engaged in the developing of learning materials. According to Yengin*et al.,* 2010 tools for designing Learning Materials includes

- **Audio recording tools**: The lecturer can record audio, convert tapes and records into a digital file, edit MP3 files, mix sounds together and change the sounds dynamics in the recordings with a number of available audio recording tools.
- **Program Image Editing**: There are a number of software's that are available to enable lecturers edit images. Lecturers can use this tool to create – edit graphics and photo file for their lessons. They create and modify many of the known digital photo file.
- **Screen recording**: Most of the e-learning lessons may need some screen recording because lecturers need to show something to the students in their desktops. Also with screen, recording lecturers can have tutorial and presentation on how to use software applications
- **Emails, blogs, wikis, e-portfolios, animation, video links**. For the lecturer to use this they need to be very innovative. For instance, Blogs or individual platforms are gradually being adopted by innovative lectures to share educational materials, visuals, exercises and assignments to students.
- **Wikis** have originated from the concept of Wikipedia. It allows students to read, add or edit materials posted by the lecturer. This thus allows for interactions between students and lecturer. The material may be presented in form of text, tables, visuals, photographs etc. A teacher constructs a wiki on any specific area and therefore ideal for teaching a diverse of subject area.
- **Video links provide links** – This is commonly used by lecturers teaching in specialized units to supplement the regular form of teaching.
- **E-blackboard** - The blackboard platform is ideal because it allows for online discussion between learners and the lecturer. Either the lecture or the student can initiate a discussion or pose a question that allows for student interaction.

E-Teaching Strategies

Strategies use in e-teaching should strive to make the lesson very interactive more when it comes to giving feedback to the students. The system should be able to allow for discussion forums. This will not only allow feedback from the lecturer; the students will also have some good feedback from his/her peers because they can have time to think on the responses and time to construct a good question or feedback. The lecturer should also be trained on methods of motivating and encouraging student's interaction.

1. E-mentoring - This strategy can encourage learners to reach out to the lecturer for online professional assistance from the lecturer.
2. E-structured group activity - this allow learners to learn in structured groups electronically in the form of

- Structured group discussion
- Peer learning groups
- Role play
- Seminars

E-Coaching

E-learning can be viewed as a mean of delivering three key outcomes: improved and consistent rates of lifelong learning, improved productivity and improved innovation and competitiveness (chang, 2016). Another desired outcome is increased equity. The globalization of education is increasing rapidly: students attend courses from all over the world, employees work and study globally in multinational companies. Education around the world is becoming strongly networked, and we are beginning to see fundamental changes taking place in the organization of education (pucciarelli & kaplan 2016).

Definition and types of e-learning:

- **One-way (asynchronous) technologies:** technologies that deliver content (learning, knowledge and skills) one way at one point in time. They include:
  - broadcast television that delivers learning content;
  - Computers;
  - CD-Roms;
  - Audiovisual aids;
  - E-mail;
  - Film;
  - Internet/intranet/extranet networks;
  - Video;
  - Wireless technologies;
  - Digital video disk (DVD).
- **Two-way (synchronous) technologies:** technologies that deliver content (learning, knowledge and skills) two

ways or more at the same time. They include:
- ICQ/IRC—interactive conferencing and chat rooms;
- Teleconferencing;
- Internet/intranet networks;
- Web conferencing;
- Wireless technologies.

The e-learning term was originated in the mid-1990s when the internet began to gather the momentum (garrison, 2011) and the application of e-learning includes a computer-based learning as well as web-based learning. Finally, these learning contents can be transferred via internet, intranet, video/audio tapes, CD-Rom, DVD, and TV channels (Sujit Kumar Basak, 2018). Papanis (2005) as cited in Tittasiri (2003: 69) stated that "e-learning provides faster learning at reduced cost, increased access to learning, and clear accountability for all participants in the learning process". A study conducted by Harriman (2010) indicated different types of e-learning, namely, online learning, distance learning, blended learning, m-learning. A learning system based on formalized teaching but with the help of electronic resources is known as e-learning. While teaching can be based in or out of the classrooms, the use of computers and the internet forms the major component of e-learning. E-learning can also be termed as a network enabled transfer of skills and knowledge, and the delivery of education is made to a large number of recipients at the same or different times. Earlier, it was not accepted wholeheartedly as it was assumed that this system lacked the human element required in learning (times, 2020).

Different authors define e-learning as e-learning provides the potential to provide the right information to the right people at the right times and places using the right medium. E-learning is about information, communication, education and training. Regardless of how trainers categorize training and education, the learner only wants the skills and knowledge to do a better job or to answer the next question from a customer (clark& mayer, 2016).

E-learning is a way of acquiring new, or reinforcing existing knowledge skills, using electronic technologies. In most cases it is done completely online, although offline is also an option (UMURERWA, 2016). E-learning is further defined by the South African department of education (SADE) as the connection of learners to learners, teachers and professional support services as well as providing platforms for learning. Electronic learning (e-learning) refers to the intentional use of networked systems in teaching and learning (Nyarko, 2011). The intentional use of ICT in education support is what is referred to as e-learning; it encompasses learning at all levels, both formal and informal, from simple tutoring to the delivery of whole courses. ICT refers to a diverse set of tools and resources

What is digital infrastructure?

Infrastructure can refer to a wide array of physical assets. One definition is "essential facilities, services, and organizational structures for cities and communities," and this includes not only roads and rails, but also fire stations, prisons, dams, roads, etc. (robert et *al*, 2016).

Digital technologies are giving rise to the so-called fourth industrial and digital as they are allowing or enhancing an unprecedented convergence of computing, communications, contents, and networking of humans.

A digital infrastructure is the set of digital technology tools and systems that offer communication, collaboration, and computing capabilities (gianluca et *al*, 2020).

Used to communicate, create, store and manage information. These tools and resources include computers and the internet, telephones, television and radio. In Rwanda, schools were closed almost immediately after the country recorded its first case of covid-19. They are expected to resume in September 2020.primary and secondary schools will restart the academic year while higher learning institutions will resume teaching activities. As a result, education has changed dramatically, with the distinctive rise of e-learning, whereby teaching is undertaken remotely and on digital platforms. Different remote learning strategies have been put in place by both government and private learning institutions in order to facilitate continued learning. Some of the initiatives include airing classes on public radios and televisions.

Electronic learning, or commonly known as e-learning, is among the earliest applications of web-based technology ((Azhari, 2015). E-learning is defined as the delivery of learning using purely internet and digital technology (Al-Busaidi, 2013). It uses a computer and software programs for its learning process, and was first designed for working adult students who were unable to receive formal education as full-time students (Moore, 2016).

According to Moore, Dickson-Deane& Galyen ,2016 they said that, digital learning is "learning facilitated by technology that gives students some element of control over time, place, path and/or pace.":

- **Time:** learning is no longer restricted to the school day or the school year. The internet and a proliferation of internet access devices have given students the ability to learn anytime.

- **Place:** learning is no longer restricted within the walls of a classroom. The internet and a proliferation of internet access devices have given students the ability to learn anywhere and everywhere.

- **Path:** learning is no longer restricted to the pedagogy used by the teacher. Interactive and adaptive software allows students to learn in their own style, making learning personal and engaging. New learning technologies provide real-time data that gives teachers the information they need to adjust instruction to meet the unique needs of each student.

- **Pace:** learning is no longer restricted to the pace of an entire classroom of students. Interactive and adaptive software allows students to learn at their own pace, spending more or less time on lessons or subjects to achieve the same level of learning.

Digital learning is more than just providing students with a laptop. Digital learning requires a combination of technology, digital content and instruction.

- **Technology:** technology is the mechanism that delivers content. It facilitates how students receive content. It includes internet access and hardware, which can be any internet access device – from a desktop to a laptop to an IPad to a smartphone. Technology is the tool, not the instruction.

- **Digital content:** digital content is the high quality academic material which is delivered through technology. It is *what* students learn. It ranges from new engaging, interactive and adaptive software to classic literature to video lectures to games. It isn't simply a pdf of text or a PowerPoint presentation.

- **Instruction:** educators are essential to digital learning. Technology may change the role of the teacher but it will never eliminate the need for a teacher. With digital learning, teachers will be able to provide the personalized guidance and assistance to ensure students learn and stay on track – throughout the year and year after year – to graduate from high school. Teachers may be the guide on the side, not the sage on the stage.

Digital learning tools

According to Danielle et *al*(2017) and Mr, G Praveen & Dr. M.Vasi(2019), here are some of the digital learning tools that make a big difference in classrooms:

- YouTube channels
- Google classrooms
- Class dojo
- Prezi
- Edmodo
- Edmodo
- Socrative
- Kahoot
- Quizz
- Socrative

The most "must-have" digital marketing tools (Brent, 2020):

- Organic Social Media
- Paid Social Media
- Email Marketing
- Display Retargeting
- Programmatic Advertising
- Website Testing
- Video Hosting
- Content Creation
- Content Curation
- Website Analytics
- Customer Service
- Search Engine Optimization
- Affiliate Marketing

What is coaching?

Coaching, of course, is about purposeful interactions between a coach and the person or persons being coached.

E-coaching moves the process online and expands the possibilities. Some e-coaches call what they do "distance coaching," "distance mentoring," or even "telementoring." What's interesting here is that online experiences and tools are the fundamental way of supporting the coaching relationship

E-coaching is the practice of coaching through technology. In this very broad sense, this means that if a human coach uses technology as a mode of communication (e.g., to get information about a coachee's behavior or to give feedback), this is considered e-coaching. Consequently, it could be argued that the communication systems that human coaches and coachees use to communicate in this practice are types of "e-coaching systems" (Bart A., 2017).

E-Coaching System

An e-coaching system is a set of computerized components that constitutes an artificial entity that can observe, reason about, learn from and predict a user's behaviors, in context and over time, and that engages proactively in an ongoing collaborative conversation with the user in order to aid planning and promote effective goal striving through the use of persuasive techniques (Bart A., 2017).

Features of E-coaching Systems(Bart A., 2017):

1. The system will need to have **social ability** in order to engage in an ongoing conversation with the user. This conversation is crucial for establishing and maintaining a collaborative relationship between user and system.
2. As coaching requires repeated interactions between user and system, the system should be **designed to be credible**, i.e., to be perceived as having expertise and being trustworthy
3. In order to stimulate ideas and action, and to assess whether a person's goals are consistent with that person's life values, the system will need to be in some relevant sense context-aware (for more on the importance of context for e-coaching systems.
4. In order to ask questions that are pertinent to a specific situation the user is in or will be in, and to develop and maintain the trust that is needed for a customized, collaborative coaching relationship, the system will need **the ability to ask questions, give feedback, and offer advice that is tailored to the individual user**. For this, the system will need learning abilities to build up and maintain a personalized user model
5. The system will need **to have information on which to base its questions and recommendations,** which means it will need to be able to interface with (different types of) data streams (e.g., direct user input, but potentially also measurements of physical activities, mood self-reports, sleeping patterns, etc.)
6. **The system has to be proactive** in order to initiate interactions with the aim of stimulating action or reflection. For example, the system could invite the user to reflect on his or her commitment to a particular goal, or warn the user at suspected moments of weakness. For this type of proactiveness, prediction of user behavior is key.
7. If the system is to be successful in supporting behavior change, not as a mere instrument, but as a coach, it needs to have some notion of what a behavior change trajectory looks like. For this, it needs to **operate on some type of model of behavior change** cf. the COM-B model and the COMBI model
8. In order to support users in setting themselves up for behavior change success, the system needs the **ability to guide its user in a process of future-directed**

Defining e-Coaching

Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, m-learning, for ex.) Have in common the ability to use a computer connected to a network that offer the possibility to learn from anywhere, anytime, in any rhythm, with any means.

E-learning refers to the use of information and communication technologies to enable the access to online learning/teaching resources.

E-learning has the potential to enable Africa to achieve education for all. As Africa faces a severe shortage of trained teachers, e-learning is increasingly gaining universal acceptance as a viable means of enabling large numbers of students to access education. Although blended learning is ideal for beginners, the eventual advantage of e-learning lies in its capacity to serve both on-campus and distance learning students concurrently.

The interest in integrating eLearning platforms in teaching environments are on the increase in higher learning institutions.

The rapid growth of information and communication technology (ICT) has brought about significant changes in the practice of e-learning globally. In recent years, there has been an increasing adoption of learning management system (LMS) assisted e-learning in higher education institutions (HEIS) in developing countries.

The 12th e-learning conference hosted by the government of Mauritius and UNESCO, in the final week of September this year, focused on the perspective of e-learning in the African continent with a lot of interesting papers and discussions presented by international academics and industry people. There are a number of activities indicative of interest by local and international communities seeking to utilize e-learning technology to improve access to education. Governments and educational institutions look at e-learning as one option that can be exploited to achieve the important millennium goal, which is 'education for all' (Betchoo, 2017)

Communication-oriented definitions

This category considers e-learning to be a communication, interaction, and collaboration tool and assigns secondary roles to its other aspects and characteristics. Representative examples of these definitions, which come mostly from the academic and communication sectors, include the following.

- "E-learning is education that uses computerized communication systems as an environment for communication, the exchange of information and interaction between students and instructors.
- "E-learning is learning based on information and communication technologies with pedagogical interaction between students and the content, students and the instructors or among students through the web .
- "E-learning is defined as learning facilitated by the use of digital tools and content that involves some form of interactivity, which may include online interaction between the learner and their teacher or peers .

Educational-paradigm-oriented definitions

This category defines e-learning as a new way of learning or as an improvement on an existing educational paradigm. The majority of the authors falling into this category work in the education sector. Some of the most representative examples of these definitions include the following.

- "E-learning is the use of new multimedia technologies and the internet to improve the quality of learning by facilitating access to resources and services, as well as remote exchange and collaboration .
- "E-learning is a broad combination of processes, content, and infrastructure to use computers and networks to scale and/or improve one or more significant parts of a learning value chain, including management and delivery.
- "E-learning is defined as information and communication technologies used to support students to improve their learning.

Because of the benefits of digital technologies, all infrastructure will become digital at some point in the future. But absent proactive public policies, this needed transition may well take a very long time. As a result, governments need to ensure that policies support the transition from traditional infrastructure to digital infrastructure.

Create "digital-friendly" regulatory policies

The robust deployment of hybrid infrastructure requires a smart and streamlined regulatory environment. Outdated and costly regulatory policies designed for the infrastructure of the 20th century may impair the development and deployment of infrastructure of the 21st century. For virtually every digital infrastructure, there is a need to modernize existing regulations to reflect significant changes in technology advances and leading industry practices.

Increase funding for digital infrastructures

For infrastructures where government is involved as an owner or operator, government should increase funding to transition to digital infrastructure. This means, for example, agencies like the departments of defense and interior upgrading the infrastructures they are responsible for with digital technologies.

Don't let privacy and security concerns slow deployment

While digital infrastructure projects manage and manipulate large volumes of data, realizing their promise need not require the sacrifice of privacy nor security.

Irembo is one example of the substantial public investment in digital infrastructure and digital service delivery highlighted in the Rwanda economic update (REU15) accelerating digital transformation in Rwanda.(Malpass, 2020)

The government of Rwanda seeks to provide better, faster and more secure services to all Rwandans. This requires a strong move towards online services, better protection of private information, more collaboration between government departments, and a change in public service culture. The future of government ICT is not just about technology. It is also about how the government uses information and technology to deliver better services, create jobs and transform the Rwandan society and economy in a constantly changing environment. Achieving these objectives requires a transformation in our approach to ICT. This is the focus of the smart Rwanda master plan. (ICT, 2018).