

**ADDIS ABABA UNIVERSITY**  
**SCHOOL OF COMMERCE**  
**GRADUTATE STUDIES**  
**HUMAN RESOURCE MANAGEMENT**

**Examining eLearning System Success: The Case of  
United Nations Economic Commission for Africa  
(UNECA)**

**BY**

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**June 2015**  
**Addis Ababa**

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*A thesis submitted to Department of Human Resource  
Management, Addis Ababa University, School of Commerce, in  
partial fulfillment of the Masters of Art Degree in Human  
Resource Management*

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## **Acknowledgement**

**My very first gratitude goes to Dr. Abdurezak Mohammed for his greater patience, critical and constructive comments, unlimited and all-time assistance. Without his skillful support, this study could have not been able to have the shape it has. I don't have words to thank Tizeta Zewide (Tizu) for all her assistance she extended. Finally I would like to thank Bewketu Bogale for his professional assistance.**

## **Abstract**

*United Nations Economic Commission for Africa (UNECA) has been exercising the eLearning system for the last several years. This study assessed the success of the UNECA eLearning system, particularly, in line with the Information System (IS) Model eLearning success dimensions such as System Quality, Information Quality, Service Quality, System Use, User Satisfaction, and Net Benefits. The eLearning system users (staffs) reflection and or perception is analyzed against the models elements in each dimensions. Online Surveymonk questionnaire was used to collect primary data from the users of the system. Sixty respondents were selected using convenience-sampling techniques. Secondary data from various sources were collected and used as well. An analysis was made using the Descriptive Statistics. Major aspects of the dimensions of the UNECA eLearning system have been assessed objectively using the IS Model Instruments; and results have revealed that majority of the staffs disagree the System is as to the Model dimensions standard. In other words, their real experience (perception) is deviated from the IS model's dimensions in relation with eLearning systems of UNECA. Internet connectivity and availability problems, lack of physical and online assistance from the respective department, problem of updating the contents of the information, lack of speedy information access, among other things, were the key issues raised by respondents. The users of the system demanded more improvement on it in line the dimensions forwarded. It is, therefore, recommended for UNECA management to assess and the system and come up with solution for the issues raised.*

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## **Acronyms**

**UNECA-United Nations Economic Commission for Africa**

**IS – Information System**

**SPSS - Statistical Package for Social Science**

**ESS – ELearning System Success**

**ITSS - Information Technology Services Section**

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# Chapter One

## 1.1 General Background of the study

In the contemporary business philosophy, be it for profit or not, organizations become aware of the dynamism in the knowledge economy and the criticality of working on human development endeavor in terms of all aspects. Armstrong (2006) indeed explained how it is important to consider human capital as the prime asset of an organization and businesses need to invest in that asset to ensure their survival and growth.

Intellectual capital has become more valuable than hard assets. Networks are replacing hierarchy; time has sped up, cooperation edges out competition. Innovation trumps efficiency; Flexibility beats might; Everything's global. The past no longer illuminates the future. We need fresh thinking. eLearning was supposed to be the answer (Cross, 2004).

King (2009) explained that importance of Knowledge Management has been based on the observation that we live in a knowledge society and that knowledge has become a crucial component of a competitive organization. Most precisely, Armstrong (2009) articulated that Knowledge has become a direct competitive advantage for companies selling ideas and relationships. Providing, if not selling, alternative economic development policies to African UN member states is among key functions of UNECA.

Robbins and Coulter (2012) orchestrated much as to how Employee training is critical to organizations and saying that it is an important HRM activity. As job demands change, employee skills have to change.

Niazi (2011) argues in a very persuasive way that training and development has its strategic positioning and it directly contributes towards organizational business goals and objectives. The author also try to explain that imparting training through use of new technologies and adapting to innovative training methods, like PI (programmed instructions), computer/simulated games, role playing and audio/visual tools are more effective and therefore same are being extensively used in current training curriculums. These newer techniques combined with conventional methods i.e.

lectures, conferences, movie/films and case studies provide effective means used for training and education conducted in particular situations

Vemic (2007) relates training with organizational objective and says that the global competition and swiftness of changes emphasize the importance of human capital within organizations, as well as the swiftness and ways of knowledge gaining of that capital. In the economy where uncertainty is the only certainty, knowledge is becoming a reliable source of sustained competitive advantage. Knowledge is becoming basic capital and the trigger of development. Previously built on foundations of possessing specific resources and low costs, present day competition is based on knowledge possessing and efficient knowledge management. Modern organizations, therefore use their resources (money, time, energy, information, etc.) for permanent training and advancement of their employees. Organizations, which are constantly creating new knowledge, extending it through the entire organization and implementing it quickly inside the new technologies, develop good products and excellent services. These activities determine the company as a learning organization with constant innovation being its sole business. These are organizations which realize that learning and new knowledge are becoming the key of success, and that education is crucial for abundance.

The social, political, and economical development of the world in general and in western countries in particular, triggered the introduction of doing business differently many years back. The very immediate manifestation of such a development was the proliferation of information communication technology tools and resources such as integrated circuit (IC), world wide web (www), and the entire digital technology dynamism, etc. Anderson (n.d), gave high credit to the technological advancement and argues that the explosion of the personal computer combined with the internet has been precipitated far-reaching changes in society and electronic communications and digital networks are transforming the way we work and are reshaping personal communication and entertainment.

Putting it in terms of time frame, the introduction and development of ICT has been exhibited in various stages of incremental advancement. In this regard, Roberta Gogos, blogger, in eFront webpage (<http://www.efrontlearning.net/blog/2013/08/a-brief-history-of-elearning-infographic.html>), cutely classified stage through which ICT has been going. As to her depiction, 1942 was marked as the year when the first testing machine was introduced; in 1954, the first teaching machine was launched;

during 1960s, computer based trainings were started; Around 1966, computer aided instruction in schools announced; In 1969, Arpanet herald internet commenced; during 1970s, mouse to computers and GUI (Graphical User Interface) accompanied the development. 1980s were the historic year due to the introduction of the first MAC computers, followed by digital natives in 1990s. In 2000s, business companies adopted eLearning and after 2010 to date, social networks, and online learning have been flourishing.

These series of development has been contributing to today's eLearning generation and knowledge economy as well.

## **1.2 Organizational Background**

Established by the Economic and Social Council (ECOSOC) of the United Nations (UN) in 1958 as one of the UN's five regional commissions, UNECA's mandate is to promote the economic and social development of its member States, foster intra-regional integration, and promote international cooperation for Africa's development.

Made up of 54 member States, and playing a dual role as a regional arm of the UN and as a key component of the African institutional landscape, ECA is well positioned to make unique contributions to address the Continent's development challenges.

The following are very brief duties and responsibilities of UNECA:

**Macroeconomic policy**-In pursuit of its mandate to promote the economic development of its member States, ECA's work in the field of macroeconomic policy places particular emphasis on collecting and analyzing data, preparing annual surveys, and producing profiles and reports on economic conditions, governance and development management in Africa.

**Social Development**-In this area, the ECA undertakes comprehensive secondary and empirical research to support policy making and programming for inclusive, equitable and sustainable development in Africa. The Commission's work extends to the provision of comprehensive and accurate information to report on global processes on social policy, including the International Conference on Population and Development (ICPD). Tools and guidelines are developed to facilitate the design, implementation, monitoring and evaluation of socio economic policies and programs.

**Regional Integration and Trade**- ECA's overarching focus is to promote policies and programs that strengthen the process of economic cooperation and integration in furtherance of the Abuja Treaty establishing the African Economic Community and

the Constitutive Act of the African Union. In that context, the Commission places particular emphasis on strategic studies that generate recommendations to advance the regional cooperation and integration agenda. For instance, the most recent edition of *Assessing Regional Integration* report tackles the Continental Free Trade Area as its theme.

**Natural Resource Management-**One important aspect of ECA's work on natural resources is the conduct of policy-oriented research aiming to support the policy, legal and regulatory frameworks for the proper management of natural resources in Africa. Also, ECA seeks to enhance the knowledge base needed to strengthen human and institutional capacities and broaden stakeholder participation with regard to the protection of Africa's environment and to the management of its mineral resources.

**Innovation & Technology-** Building on the experience of the implementation of the African Information Society Initiative and the African Innovation framework, ECA is focusing on assisting African countries and Regional Economic Communities (RECs) in the formulation, adoption and implementation of new technology and innovation policies that will help them accelerate the transformation process to improve the competitiveness of their firms, the welfare of their citizens, including ensuring their collective and individual security.

**Gender-**The African Centre for Gender (ACG) provides technical support to member States to address gender inequality and women's empowerment through developing tools and providing evidence for policy formulation and effective implementation. It also facilitates the tracking and monitoring of the implementation of the agreed commitments and declarations.

**Governance-** Functional institutions, visionary leadership, and participatory governance mechanisms are key ingredients of the transformative agenda in Africa. Such an institutional milieu underpins economic and social development as it favors long-term investment, unlocks the potential for domestic resource mobilization, unleashes entrepreneurial capacity and induces broad-based participation and property rights.

So as to fulfill duties and responsibilities aforementioned above, and other mandates for that matter, UNECA needs resources and must utilize it optimally and efficiently at most possible. Human Resources, among other things, is the critical one. Hence, it needs the organization to devise a comprehensive strategy of managing human capital. When such a strategy cascaded to downstream, there is a fundamental task of

Human Development. Knowledge Management, Training and Development have, then, a lot to do with eLearning endeavor of the organization.

Having a well-thought, comprehensive, and dynamic corporate human development strategy in general and ways of delivering the eLearning in particular per se will take UNECA to nowhere, unless it evaluates its eLearning system success in terms of ROI and the impact at its entirety.

### **1.3 Statement of the problem**

The very reason of the establishment of UNECA, as one arm of UN in Africa, is to bring socio-economic development in the continent. Such a role has been manifested in terms of integrating the region with within and the rest of the world socially and economical. So as to achieve this objective, UNECA deploys various resources. Among key resources, its employees would stand in the first front. They are not only engine of its movements, but are also the chassis that holds the rest of the resources and let them going to the direction stipulated. Hence, employees are critically determinants of the destiny of the organizations' objectives. Due to this and other reasons, managing human resource in general and administering training and development of employees in particular, becomes the priority before anything else.

Having this in consideration, the organization has been working on training and development. Various training schemes have been deployed in different time and form. eLearning, among other trainings, has been the most convenient in terms of time management and pace management. However, the system have been various problems such as connection failure, less assistance and the like. There has been also no mechanism to measure as to how the eLearning is effective and efficient from the employees' perspective. The system has been suffering with problems

This is, therefore, critical for UNECA to know how successful its eLearning system is. It needs to assess and evaluate the entire system of the eLearning. If not for some sporadic activities of getting feedback from employees, there has been no comprehensive and systematic approach of measuring the success of eLearning, which has a lot to do with return on its investment.

This research aims at getting complete picture of success of eLearning in UNECA base on reflections of staffs' assessment to the system. Using the IS success model instrument, employees of UNECA will evaluate the system using the dimensions

therewith. Accordingly, their perception will determine the status of the system. In doing so, the entire effort of the paper revolves around seeking answers to the following basic research questions:

To what extent the UNECA eLearning system is successful?

- To make an assessment on actions being taken by UNECA management to bring the eLearning successful.
- To point out for the management those areas which require special attention for the attainment of the eLearning success.
- To draw the attention of the management towards pertinent directions and courses of actions (strategies) so as to maintain best eLearning system.
- To know where the importance and weight of the dimensions of the IS model differ as the demographic data differs
- To let other researchers to see the area and contribute their part in filling the gap.

## **1.4 Objective of the study**

### **1.4.1 General Objective**

The general objective of the research is to examine whether the eLearning in UNECA is successful or not by specifically taking the evaluation of employees (learners') using the model aforesaid.

### **1.4.2 Specific Objective**

The specific objectives are:

- To indicate the levels of the eLearning system quality in terms of availability, easiness to use, interactive features, information presentation, high-speed.
- To examine Information quality in the eLearning process such as to what extent information is as to the learners' demand of relevance to their job, timeliness, easy to understand, up-to-datedness, sufficiency.

- To indicate the level of the Service quality in the process of rendering eLearning- as to how developers of the system give a chance to learners to participate in time of developing and improving the system, to what extent the information systems staffs are willing to and capable of responding to the questions of the learners’.
- To identify and show the level of the usage of the eLearning system- how frequent learners use the system? How users depend on the system, is the learning on voluntary basis?
- To examine the satisfaction of users on the system
- To enable the management of UNECA to consider evaluation of its eLearning systems in line with the users interest.

## **1.5 Significance of the study**

The research is significant in such a way that it generates a comprehensive overview of measuring success of eLearning in international organizations in general and in UNECA in particular. It would also pave the way to formulate strategies that help to make eLearning successful in international organizations. Moreover, the research results have substantial contribution in the following areas:

- Provide a useful ground for further eLearning success assessment surveys among many international organizations and United Nations agencies;
- Enrich the knowledge of the management and employees of UNECA with what successful eLearning is all about;
- Enable the management to devise eLearning success strategies that substantially improve the quality and sustainability of the system.
- Indicate areas of eLearning system problems where more focus must be given and more resource and energy must be injected.
- Make useful strategic recommendations in line with resolving existed eLearning problems.

On top of all these, this research leaves behind an important lesson for International organizations, specifically United Nations Agencies, the application of the objective measurement of success of eLearning system using the IS model and its dimensions.

### **1.6 Limitation of the study**

The very immediate and major constraint of this study is that it is very few studies under gone in connection with eLearning, unlike other sectors. It has been even hardly possible to get a study conducted locally in this regard. Hence, the researcher couldn't compare and contrast his study vis a vis others and let readers view various perspectives. Time has, in its part, been another constraint for this study. This has an impact on the population and sample size used. The larger both of these, for obvious reason, the best representative would have been the conclusion reached.

### **1.7 Scope of the study**

Considering time, cost, and manageability to the researcher, the scope of this research is limited to United Nations Economic Commission Headquarters in Addis Ababa. It doesn't include Sub-Regional Offices in the continent, Africa. Within the Head Quarters, it covers all the divisions and sections. The research focuses on assessing the successfulness of the eLearning system in view of staff as well as management. The research pursues the IS model developed by DeLone and McLean (1992). The model measures the eLearning success in terms of its dimensions such as system quality, information quality, use, user satisfaction, individual impact and , organizational impact.

The research has been confined to using a comprehensive scale adapted from the eLearning system success (ELSS) IS model, to determine the success of the system in the eyes of users as well as management and to empirically measure the level success of the system. System success would be evaluated solely basing the approach of the IS model. eLearning system success involves the role of management, employees (user) and the system itself.

### **1.8 Organization of the Study**

The study will have five chapters: the first chapter deals with background of the study or introductory part of the paper followed by the Chapter Two, which is dedicated to literature review. Chapter there is all about the Methodology

employed in this study. Data presentation, analysis, and interpretation come in chapter four of the study. The final, chapter five is dedicated to draw conclusions and recommendations.

# Chapter Two

## Literature Review

### 2.1 Learning

In business, learning is a means to an end. Generally speaking, that end is enhanced workforce performance, which in turn reflects its value better products and services, lower costs, a more competitive posture in the marketplace, greater innovation, improved productivity, increased market share, etc (Jeffrey, 2001:4). This is the very high level and generalist definition of learning. In other words, it doesn't tell when what to learn.

As to where we can get learning, Billett (2001) explained that we think the very places of learning are schools and colleges. As a student, in one or other way, we went through these places. It is this fact that forced us to associate those places with learning and as a result developed perception that mislead to draw wrong conclusion of where really learning come from.

#### 2.1.1 eLearning

Electronic learning (eLearning) has been widely adopted as a promising solution by many companies to offer learning-on-demand opportunities to individual employees in order to reduce training time and cost (Wang & Shee, 2007).

As to Ramayaha's (2012) definition, Electronic learning (eLearning) is well documented in the IT literature and it has increasingly provided an entirely new environment and experience of learning that goes well beyond the classrooms, curricula and text-based formats. And with regard to its scope, he explained that eLearning generally involves delivery of course content using the electronic media, such as Internet, Intranets, Extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM

E-learning concept has been around for decades and is one of the most significant recent developments in the information systems industry. E-learning can be viewed as the delivery of course content via electronic media, such as Internet, Intranets, Extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM. E-

learning is one of the new learning trends that challenge the traditional “bucket theory” (H.M. , 2007).

eLearning is a compound word comprised of the abbreviation for “electronic” and the word “learning”. It is a modeled system for teaching and learning particularly designed to be applied from a distance by utilizing electronic communication such as internet, and it has recently become popular all over the world (Oztekin, Kong, & Uysal, 2010).

eLearning is the computer and network-enabled transfer of skills and knowledge It’s just another way to distribute training material but it does allow for some interesting instructional media and methods (Ouimet,2010 ).

eLearning is commonly referred to the intentional use of networked information and communications technology in teaching and learning. A number of other terms are also used to describe this mode of teaching and learning. They include online learning, virtual learning, distributed learning, network and web-based learning (Naidu, 2006).

E-learning can be defined as a dynamic and immediate learning environment through the use of internet to improve the quality of learning by providing students with access to resources and services, together with distant exchange and collaboration. E-learning supports learners with some special capabilities such as interactivity, strong search, immediacy, physical mobility and situating of educational activities, self-organized and self-directed learning, corporate training, personalized learning, and effective technique of delivering lesson and gaining knowledge (Mohammadi, 2015).

Wang and Hwang (2004) acknowledge the fact that learning is becoming more prevalent and they suggested that the question, “what is e-learning?” ought to be answered in the following different manners:

e-learning covers a wide set of applications and processes such as Web-based learning, computer-based learning, virtual classrooms, and electronic collaboration. As to which media is used to deliver it, they include It includes Internet, intranet/extranet (LAN/ WAN), audio- and videotape, satellite broadcast, interactive TV, and CD-ROM.

On the other hand they define eLearning as a means of becoming literate involving new mechanisms for communication: computer networks, multimedia, content portals, search engines, electronic libraries, distance learning, and Web-enabled

classrooms. eLearning is characterized by speed, technological transformation, and mediated human interactions, they added.

The definition of eLearning by (Mason and Rennie, 2007) is something revolving around the web. For these scholars, the source of definitions emanates from the respective emphases of the given field of studies. Accordingly, some focus on the content, some on the communication, and others on the technology. They tried to witness ASTD's (American Society for Training & Development) definition-It is web based learning, computer-based learning, virtual classrooms and digital collaboration. ASTD even includes the delivery of content via audio and videotape, satellite broadcast, interactive TV and CD-ROM. Moreover, scholars added other more definition which confines eLearning to the use of the internet:

- eLearning refers to the use of internet technologies to deliver
- It is a broad array of solutions that enhance knowledge and performance.
- It is based upon three fundamental criteria:
- It is networked.
- It is delivered to the end-user via a computer using standard Internet technology.
- It focuses on the broadest view of learning

What these scholars called *simplified and comprehensive* definition of eLearning comes from Open and Distance Learning Quality Council of the UK. It recognizes the distinction between the content of learning and the process: eLearning is the effective learning process created by combining digitally delivered content with (learning) support and services.

The other definition of eLearning emanates from its scope. Thus, e-learning includes a range of activities, from the effective use of electronic resources and learning technologies in the classroom, through to a personal learning experience enabled through individual access at home or elsewhere.

eLearning is as an approach to instruction and learning that utilize Information and communication technologies to communicate and collaborate in an educational milieu. This includes technological expertise that supplements traditional classroom training with web-based components and learning environments where the educational process is experienced online (Imran, 2012).

Boezerooy (2006) asks what exactly is eLearning. and positioned himself that having common definition is not simple. The myth about eLearning is that everybody knows what you mean when you talk about eLearning. However, the term eLearning means different things to different people. e-Learning is “computer-based training delivered over intranets and the Internet, e-Learning is the delivery of a learning, training or education program by electronic means, e-learning involves the use of a computer or electronic device (e.g. a mobile phone) to provide training, educational or learning material, e-Learning is a term covering a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and videotape, satellite broadcast, interactive TV, CD-ROM, and more or e-Learning is distance education or education delivered on the Web.

### **2.1.2 eLearning Theories**

As far as theories on eLearning are concerned, as many authors say, there is no separate theory for it. Rather, it is associated with the theory of learning in general. In this connection, (Terry & de Freitas, 2010) propose the following theories:

- **The associationist/empiricist perspective (learning as activity)**-In this approach, knowledge is an organized accumulation of associations and skill components. Learning is the process of connecting the elementary mental or behavioral units, through sequences of activity. This view encompasses the research traditions of associationism, behaviourism and connectionism (neural networks). Associationist theory requires subject matter to be analysed as specific associations, expressed as behavioural objectives.

- **The cognitive perspective (learning as achieving understanding)**

As part of a general shift in theoretical positioning in psychology starting in the 1960s, learning, as well as perception, thinking, language and reasoning became seen as the output of an individual’s attention, memory and concept formation processes. This approach provided a basis for analyzing concepts and procedures of subject matter curricula in terms of information structures, and gave rise to new approaches to pedagogy.

- **The situative perspective** (learning as social practice)

The social perspective on learning has received a major boost from the reconceptualization of all learning as 'situated'. A learner will always be subjected to influences from the social and cultural setting in which the learning occurs, which will also define at least partly the learning outcomes. This view of learning focuses on the way knowledge is distributed socially

### **2.1.3 Benefits of eLearning**

An eLearning system is only as good as the learning it delivers (Paton, 2005). For Khan (2005) there are two types of benefits in eLearning: tangible (hard), and intangible (soft) benefits. Hard one associated with an instance of instructors' travel expense reduction and intangible benefit is attributed to improved cross-cultural communication skills. In the strategy of development of staffs' KSA, companies have been using various means so as to boost efficiency and effectiveness at work. Among those, eLearning is the contemporary area that seeks the attention of CEOs of companies. However, employing eLearning strategy has its own pros and cons. Beka (2014) enumerates the following advantages and disadvantages:

#### **Advantages**

- Students can study anywhere they have access to a computer and Internet connection.
- Self-paced learning modules allow students to work at their own pace
- eLearning can accommodate different learning styles and facilitate learning through a variety of activities.
- Successfully completing online or computer-based courses builds self knowledge and self-confidence and encourages students to take responsibility for their learning.

#### **Disadvantage**

- Technology dependent
- Material incompatibility
- Expensive

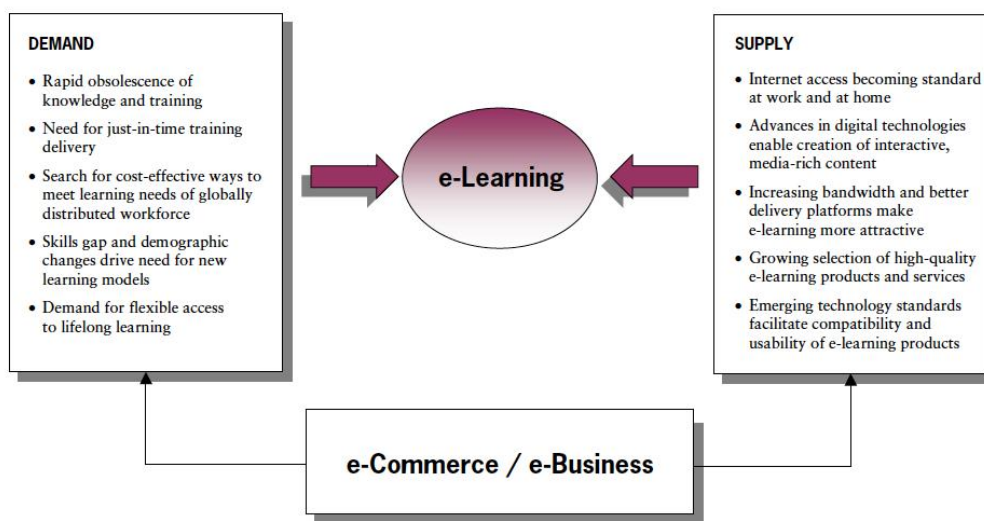
- Social/economic disadvantage
- Too reliant to IT skill
- Not good for people with disabilities
- Pedagogically unsound

The benefits of e-learning are many including cost-effectiveness, enhanced responsiveness to change, consistency, timely content, flexible accessibility, and providing customer value (Sanderson, 2001).

Michael (2002) approached the benefit of in relation with individual works and said that eLearning offers many new options to the worker: the freedom to engage in a class or online exercise at work or at home, after hours in installments and, depending on schedule, convenience, and opportunity to choose between immediate, performance driven learning and longer-term developmental growth. There are also different methods for those who are visually oriented, simulations or Web-based instruction, or those who need to interact with other people or learn best through conversation, communities of practice.

For the question why eLearning and what drives organizations to have eLearning strategy was tried to be answered by Bachman (n.d.) in the following depiction.

Fig-1 Driving force to employee eLearning taken from Jeffery (2001)



Jeffery (2001) enumerates the benefits of eLearning in the following explanatory way:

- ✚ Lower Cost- it is most cost effective via reducing travel expense, less time, significantly reduces needs of classrooms, etc.
- ✚ Enhances business responsiveness- eLearning can reach an unlimited number of people virtually simultaneously
- ✚ Messages are consistent or customized, depending on need in a manner everyone gets the same content, presented in the same way. Yet the programs can also be customized for different learning needs or different groups of people.
- ✚ Content is more timely and dependable- being web-enabled; e-learning can be updated instantaneously, making the information more accurate and useful for a longer period of time. The ability to upgrade e-learning content easily and quickly, and then immediately distribute the new information to large numbers of distributed employees, partners, and customers, has been a godsend for companies trying to keep people current in the face of accelerating change.
- ✚ Learning is 24/7- people can access e-learning anywhere and any time.
- ✚ No user "ramp-up" time-With so many millions of people already on the Web and comfortable with browser technology, learning to access e-learning is quickly becoming a non-issue.

Electronic distribution of course material; flexibility for students - when to study, at what pace - supporting different learning styles; accommodation of different ability levels; establishment of communication between students and tutors, and between students; greater access to information; greater flexibility in maintaining and updating course documentation.

#### **2.1.4 eLearning success dimensions**

As far as eLearning dimensions are concerned, various scholars try to articulate their perspectives, in a way they believe is convincing. Actually, dimensions are their respective judgments and way of understanding towards eLearning and its success determinants. In this regard, (Samarasinghe & Tretiakov, 2009) elucidate the dimensions as *Learners' satisfaction*, *Self-reported system use*, *Self-reported student*

*learning, and Continuance intention.* Moreover, these scholars try to demonstrate how these dimensions are influenced by related determinants such as *Content quality, System quality, Service quality, and Perceived task value.*

When they consider content quality, they do mean that to what extent the eLearning quality is as to expectation, while system quality is about technology aspect of the system which directly refers to ease of use, reliability, responsiveness and the like. Service quality refers to instructor and technical support involvement in e-learning experience, and perceived task value refers to the importance attached by the learner to being successful in the course, they added.

Paton (2005) approached the eLearning dimension in terms of quality. Quality for him is quite difficult to deal with it due to the fact that it may have so many aspects. However, it can be defined as *fitness for purpose* and they are at least five distinct kinds of quality:

- **Acceptability to users/trainees-** there are many organizations in which training (including e-learning) is seen as an opportunity to engage people's hearts and minds, and developers will be expected to think about what people want to hear as well as what the organization wants to say.
- **Effectiveness-** whether the trainees actually learn what they are supposed to learn from the resources and (a greater challenge) whether this actually makes a difference to their work. Organizations are now quite insistent on having a return-on-investment business case for training.
- Acceptability to the organization
- Accuracy
- Production values

Gamage, Fernando, and Perera (2014), also come up with the following dimensions of eLearning success dimensions:

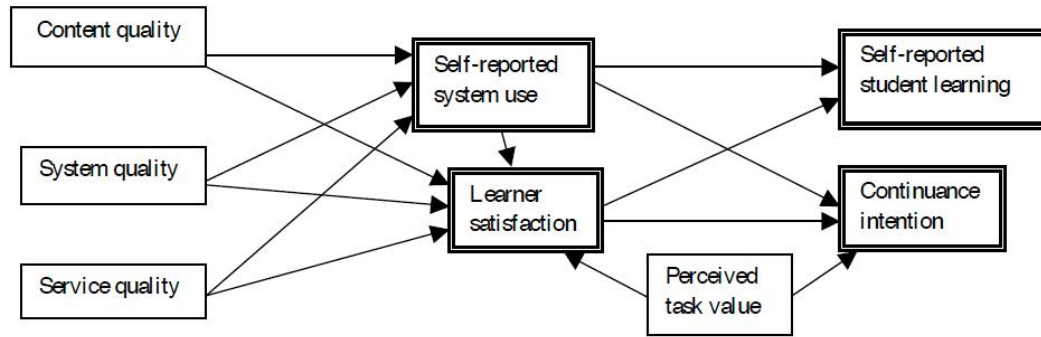
- Technology-How was the introducing new technology changed the eLearning perception
- Pedagogy- Manner that course was designed to support the needs of the user

- Motivation- How motivated the student to take courses online
- Usability- Is it user-friendly to access the platforms and media
- Content/Material- Are the materials up to date and meet the goals of learner
- Support for Learners- Do the system or the platform accommodate users needs and support
- Assessment- How the evaluation of courses carried out
- Future Directions- Recognition to the course and how the industry will look at what course did
- Collaboration- Attention, Relevance, Confidence, Satisfaction
- Interactivity- With peers, Material/Content, Instructor

Moreover, with regard to dimensions, Attwell (2006) argues that in order to gain a more specific view of e-learning measures in small and medium-sized enterprises, three dimensions were introduced for each phase of the evaluation of eLearning. And these are organization, pedagogy, and technology.

In this connection, Canadian Council on learning (2009) approaches the dimensions of eLearning somehow differently. Synchronicity (Synchronous and Asynchronous), Location (Distributed and Individual), Independence (Collaborative and Electrically only), Mode (Blended) are considered by the institution as important variables in dealing with eLearning.

Samantha (2009) argued that e-learning success are depicted in the figure below and as to his explanation, rectangles with double border are dimensions, while their determinants are shown as rectangles with plain borders. Content quality refers to the quality of eLearning content, system quality refers to the technology aspect of the system (ease of use, reliability, responsiveness etc.), service quality refers to instructor and technical support involvement in e-learning experience, and perceived task value refers to the importance attached by the learner to being successful in the course. For all of the determinants, validated measures are available. All of the relationships shown in the model are positive (e.g better content quality results in greater learner satisfaction).



**Fig. 2 eLearning success dimensions**

### **2.1.5 eLearning and Knowledge Management**

In today's knowledge economy, companies either flourish or perish based on their way of managing knowledge. Michael(2002)'s expression in this connection, strongly backs the argument forwarded.

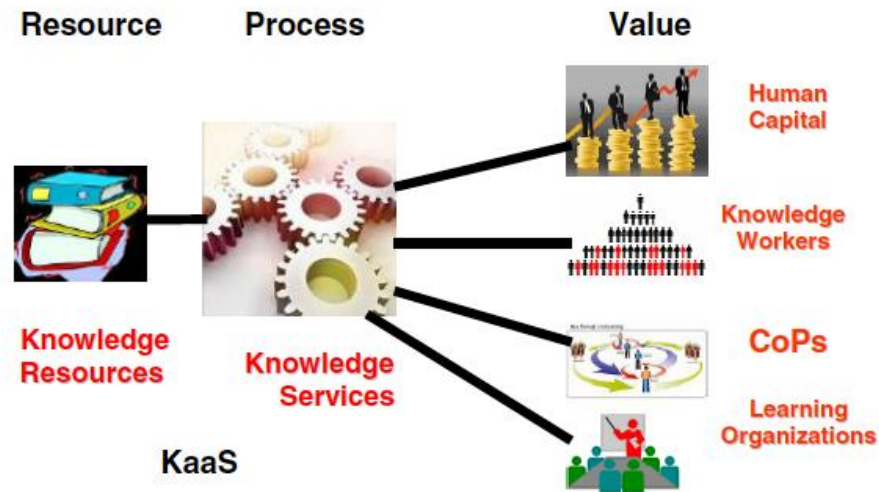
*The survival of the fittest is quickly becoming the survival of the fittest to learn.*

Once a company gains a knowledge-based competitive edge, it becomes ever easier for it to maintain its lead and ever harder for its competitors to catch up (Jeffre, 2001).

Social, technological, and economic drivers are transforming education around the world. As globalization encompasses local economies like never before, the development of a skilled workforce becomes a genuinely international concern. And as human capital becomes the chief source of economic value, education and training become lifelong endeavors for the vast majority of workers (Bachman, ).

eLearning will cease to be seen as a distinct category and will often converge with knowledge management. An integrated knowledge and learning strategy will be a high priority for many companies. They will keep control of that strategy – and of mission critical content (Paton, et al., 2005). They further argue that one of the most visible changes will be the entry of skills development into the mainstream of the companies. Most eLearning to date has been about enabling people to acquire knowledge– many programs ostensibly about skills are really explaining concepts and testing understanding.

Fig. 3 Knowledge Management taken from Miltiadis et al. (2010)



Miltiadis et al.(2010) in the above diagram tried to associate knowledge resources with various service their synchronization process which eventually added value to organizations in terms of developing human capital, creating knowledge workers and on top of these learning organizations.

Michael (2002) tried to associate the necessity of managing knowledge via implementation of workplace learning, specifically eLearning as strategy of learning organizations as follows:

*One of the most striking workplace phenomena as we enter the 21<sup>st</sup> century is the unrelenting demand for increased knowledge and speed of learning. A small but growing number of companies worldwide are recognizing technology as the key to achieving better and faster learning. Corporate e-learning in the United States alone is a \$1.2 billion market and is expected to grow to \$7 billion by 2003.*

The ever-increasing importance of knowledge in our contemporary society calls for a shift in thinking about innovation in eLearning. Important factor for the success of eLearning lies in knowledge management (Miltiadis, et al., 2010)

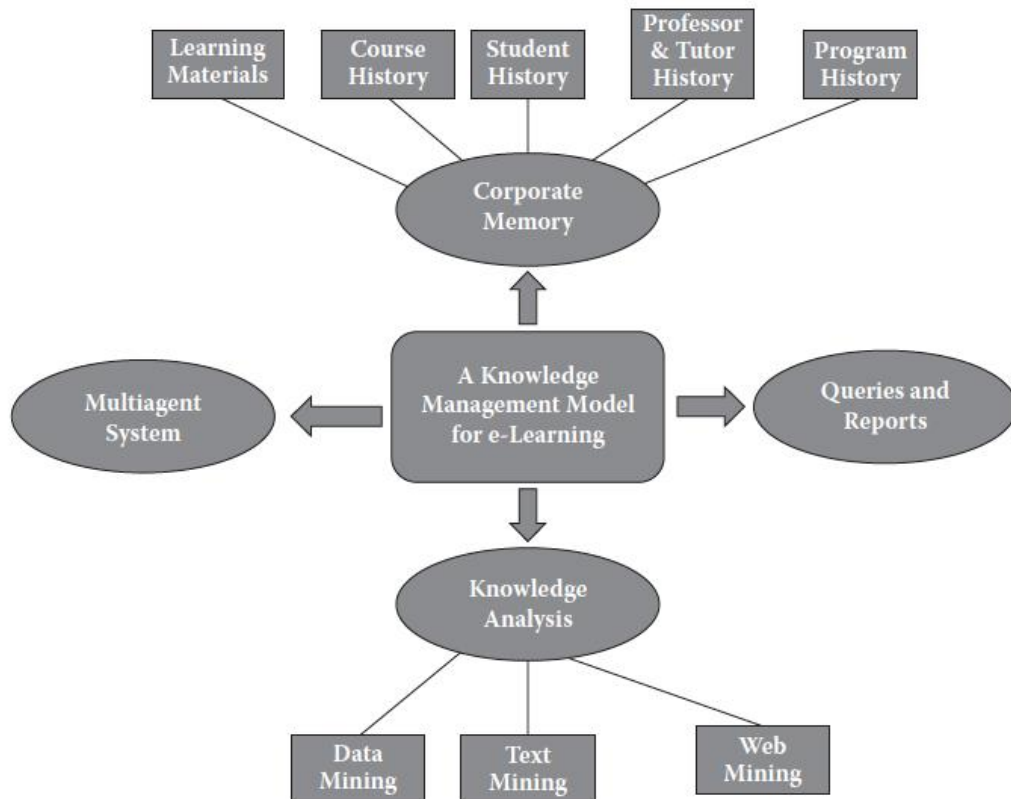
Academic research conducted in the last decade within the economic and accounting disciplines suggests that knowledge and intellectual capital accounts for a significant

unexplained wealth created within the economy and value created by firms (Naeve, 2007).

Liebowitz and Michael (2011) discussed the eLearning and knowledge management in a very synchronized way. In the figure hereunder, these authors provide detail and vast explanation of the relationship and dependency between eLearning and Knowledge management. Accordingly, an **eLearning Corporate Memory** is a set of entities defined by their attributes, whereby each of the entities is represented by a repository that stores information such as learning materials, courses, students, professors, and tutors.

**Knowledge analysis** is about the use of data, text, or Web mining techniques to extract knowledge and useful information from each of the components of the eLearning corporate memory to assist program directors and academic administrators and other decision makers

**Fig. 4 Elements of the Knowledge Management Mode for eLearning. Taken from Liebowitz and Michael (2011)**



The use of **Multiagent System** technology to automate and provide intelligence to the eLearning model is a project that builds upon the technology in knowledge distribution or managing research assets.

**Queries and Report** facilities are available at user convenience to obtain information about the various components of the e-learning programs.

It has been time and again articulated that organizations' competitive advantage heavily depends on their human capital. This is the fact that it is only via their staffs' KSA (Knowledge, Skill, Ability) they can beat competitors. Other resources they have can be owned or copied by others easily. The competition based on standard products is replaced by the offer of distinguished comprehensive services that are unique.

Now a days, managing human capital becomes the top strategic issue and many has been said and the rhetoric continues. Strategy formulation should start with the competence of people. People are seen as the only true agents in business; all tangible physical products, assets as well as the intangible relations, are results of human action and depend ultimately on people for their continued existence (Sveiby, 2001).

A transparent presentation of the “intellectual capital ” makes a company more attractive to investors. Thus, a company can achieve long-lasting competitive advantages, especially if its knowledge cannot be copied or transferred (North, K. and Kumta, G., 2014:16). Hence, it is very natural to organizations to strive and use every opportunity to boost their human capital's KSA. Barly(1999) in Jassim (n.d.) says that for a given resource to be the center of competitive advantage, it has to fulfill some criteria and attribute the following points:

- The resource must be valuable in such a way the company can exploit every possible opportunity and use it to reduce possible environmental risks.
- The resource must be rare in the business and its competitors
- The resource must be imperfectly imitable
- The resources must not be strategically replaceable or with no substitution

With regard to criticality of people for the organizations' success and development Cheng et al. (2014) discussed that as a result of globalization and economic dynamics in recent decades, companies are forced to search for new ways to achieve their competitive advantages via improving workplace learning and considered human performance is crucial for sustainable development.

For, Knowledge service is looked as a key component and essential infrastructure of knowledge society, which can be used as an effective measure to promote professional development of knowledge workers and improve their productivity (Miltiadis, et al. ,2010: 59).

*Knowledge management enables individuals, teams and entire organizations to collectively and systematically create, share and apply knowledge to achieve their strategic and operational objectives. Knowledge management contributes to increasing the efficiency and effectiveness of operations on the one hand and to innovate and change the quality of competition on the other. The aim of knowledge-oriented management is to generate knowledge from information and convert this knowledge into a sustainable competitive advantage that can be measured as success in the business (North, and Kumta, 2014:xxiii).*

As to how employees must utilize the available technology at their disposal, Michael (2002) recommend that individuals and especially teams are needed to optimize the development and application of technology and in this connection developing the best e-learning hardware and software requires a keen understanding of how individuals and groups learn; how they can access, transfer, and apply knowledge; and how their learning and knowledge can lead to corporate success.

As to Write et al. (1994), in Jassim (n.d.), explain that human resource can be source of competitive advantage due to the fact that they meet the aforementioned Barly's criteria and are source of sustainable competitive advantage.

Armstrong (2009), strengthen the idea that employees are critical sources of organizations' competitive advantage by stating the following:

*People and their collective skills, abilities and experience, coupled with their ability to deploy these in the interests of the employing organization, are now*

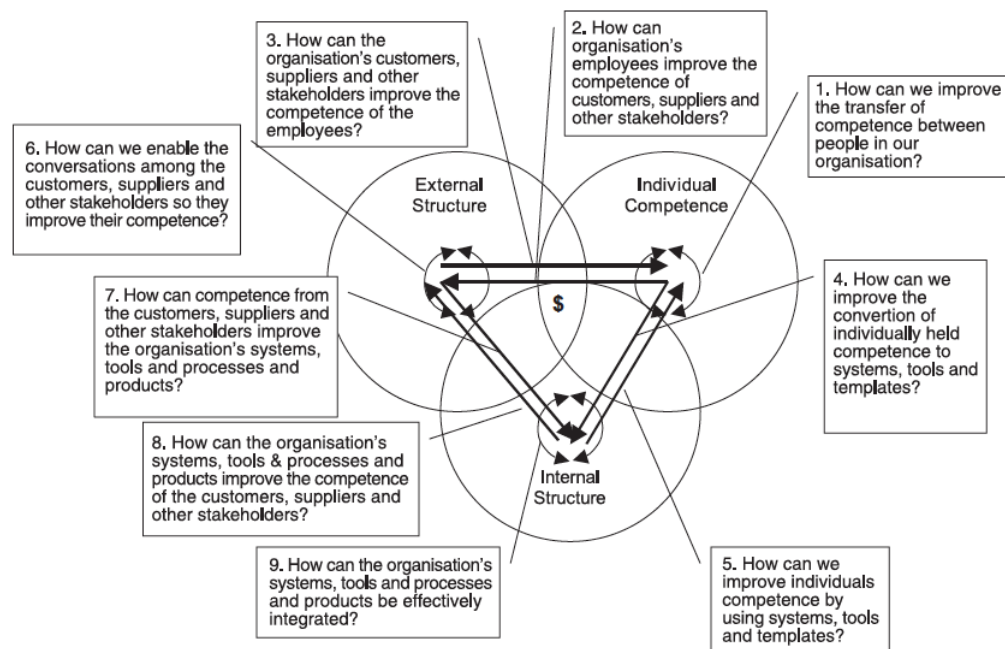
*recognized as making a significant contribution to organizational success and as constituting a major source of competitive advantage.*

Kumari (n.d.) reinforced the importance of people in the organization and added that Human resources of an organization is an unique asset to the organization and is essential for a business to gain competitive advantage over its competitors.

Sustainable competitive advantage is attained when the firm has a human resource pool that cannot be imitated or substituted by its rivals (Armstrong, 2009:68)

Sveiby (2001) approached knowledge management strategy issues and put it in a very holistic manner as can be seen in the figure followed here.

**Fig. 5 The Nine Knowledge Strategy Questions taken from Miltiadis et al.(2010)**



Thinking globally, the very essence of knowledge management, knowledge sharing in particular has been the central issue of resolving global problems. In, this connection Miltiadis, et al. (2010) stated that global organizations like The United Nations, tried to establish international Portals in such a way they manage various problems such as Jakarta Tsunami and Asian earthquake problems.

Web portals were used to collect data on disasters. As a result, UN manage to succeeded the establishment of United Nations Disaster Management Training Programme (DMTP), a global learning platform that addressed crises, emergencies and disasters for the UN Member States, the UN system, donors and international and non-governmental organizations, and trained United Nations, government and civil society professionals between 1991-2006. This initiative contributes to one of the measures of the strategic plan of the United Nations University (UNU) to serve as a key international clearinghouse for e-learning on sustainability.

Jeffrey (2001) elucidated well how the integration of learning architecture, infrastructure, learning culture, management commitment for change and ownership, and the like. The author listed the said points as variables of the Strategic Foundation for eLearning:

- ✓ Learning architectures- the coordination of e-learning with the rest of the organization's learning efforts.
- ✓ Infrastructure- the use of the organization's technological capabilities to deliver and manage e-learning. From general Web access to so-called "learning management systems," the lack of a good infrastructure can stop eLearning in its strategy.

Fig. 6 Strategic Foundation of eLearning taken from Jeffery (2001)



- ✓ Learning culture, management ownership, and change management the creation of an organizational environment that encourages learning as a valuable activity of the business, supported by senior managers who are truly engaged in the process. Given a negative learning culture and a quality eLearning initiative, the culture almost always wins. And without an e-learning champion, the initiative may never get off the ground. The effective use of change management can help turn the tide.
- ✓ Sound business case- the development of a compelling business case that supports e-learning. The old measures of student days and tuition revenue just won't cut it anymore.

### **2.1.6 eLearning and Return on Investment (ROI)**

An eLearning system is meaningful to institutions when it has a sound return on investment and institutions do costing and return on investment analysis before, during, and after the implementation of eLearning projects. Return on investment in eLearning involves comparing the costs of learning to its benefits (Khan, 2005).

$$ROI(\%) = \frac{Benefit - TotalCost}{TotalCost} * 100$$

Institutions can consider different options in shaping a long-term strategy for achieving acceptable financial returns from eLearning (Educause, 2006).

Based on e-Learning advantages such as scalability, consistency, cost reduction, time reduction, improved productivity, profitability impact, and others, it is essential for training managers to know how to assess e-Learning effectiveness to prove that it is indeed a value-added project and thus guarantee a successful e-Learning strategy throughout the corporation (Cabezas, n.d.)

When organizations, be it for profit or not, think of human resource development in general, training and eLearning in particular, they are anticipating the commensurable return on their investment. They need to achieve best value for the money and time they spent on their employees. Ching et al. (2014), emphasis the need to assess the return on investment of eLearning and says that issues of effective return on investment on eLearning must be effectively evaluated in relation to Kirkpatrick's (1976) four-level training evaluation points such as *learner reactions*, *learning achievements*, *work behavior*, and *organizational* results.

Organizations regarded their employees as important asset and stresses that investment by organizations in people will generate worthwhile returns (Armstrong, 2009:68)

### **2.1.7 Data Mining and eLearning**

Data mining is the extraction of implicit, previously unknown, and potentially useful information from data (Witten and Frank, 2005 ).

Machine learning techniques can be used to automatically extract characterizations of LO collections. Indeed, the application of Data Mining (DM) techniques in the e-

learning domain, have become more frequent in recent years. DM in eLearning has been mainly oriented to analyze student's behavior, outcomes and interests in their interaction with learning technology and learning resources (Miltiadis, et al., 2010:106).

Romero, Ventura, and García (2007) articulated the strong relationship of eLearning and data mining. For these authors, the application of data mining in eLearning systems is an iterative cycle in which the mined knowledge should enter the loop of the system and guide, facilitate and enhance learning as a whole, not only turning data into knowledge, but also filtering mined knowledge for decision making. Moreover, they indicated as to what does this process consists and said that the eLearning data mining process consists of the same four steps in the general data mining process as follows:

- Collect data
- Preprocess the data
- Apply data mining
- Interpret, evaluate and deploy the results

Data Mining methods have been integrated into software platforms implemented in real eLearning systems (Castro, n.d.).

### **2.1.8 Evaluating eLearning**

Evaluating e-Learning training program effectiveness is important for corporate training managers because it makes program scope, benefit, and improvement analysis possible (Cabezas, n.d.)

While information systems success/effectiveness models have received much attention among researchers, little research has been conducted to assess the success of e-learning systems in the context of an organization.

eLearning can be evaluated using various instruments and dimensions. Miltiadis, et al. (2010) comes up with the infrastructure approach of evaluating eLearning. In this approach, their focus is on the quality of eLearning environment.

## Infrastructure Approach

- **Cognitive**-The cognitive dimension relates to learners' cognitive prerequisites and evaluates if learners have the knowledge, skills and strategies, which are necessary for working in the learning environment. The evaluation of learners' prerequisites is essential for running an eLearning, argues further, Miltiadis, et al. (2010). And this helps to characterize and define a target group and particular learning goals. The most obvious prerequisite is a learner's individual prior knowledge. Knowledge about how learners with different levels of prior knowledge perform in a learning environment can be an important aspect for specific facilitation and the tailoring of the learning environment.
- **The epistemological dimension**-relates to the content and evaluates the quality and structure of the content, its implementation and its effects on the learners. This parameter has its own further parameters: correctness and appropriateness of the content, presentation of the content (didactical design) and learners' perception of the content (acceptance). Didactical design and the issue of learner perception of the content (acceptance). The parameter of correctness/appropriateness is crucial for the development of learning material. Acceptance parameter is important due to the fact that it is the means to evaluate success of eLearning in the eyes of users. In other words the acceptance of a learning environment is of particular importance for its success, because if learners don't accept a learning environment, they would hardly use it beneficially.
- **The social dimension**- is related with sociability that comprises of facilitation and tutoring, and learners' opportunities to have social interactions. Sociability relates to the issue how far learners perceive the learning environment as a social medium.
- **The technical dimension**- deals with the usability of the learning environment and support for learners' technical problems i. e. usability and technical support are further dimensions within this. Usability is the extent to which a product can be used by specified users to achieve specified goals

effectively, efficiently and satisfactory in a specified context of use. Usability describes how easy a product or media can be used. It considers the satisfaction of the user who wants to fulfill a specified task with the aid of the product.

### 2.1.9 Challenges of eLearning

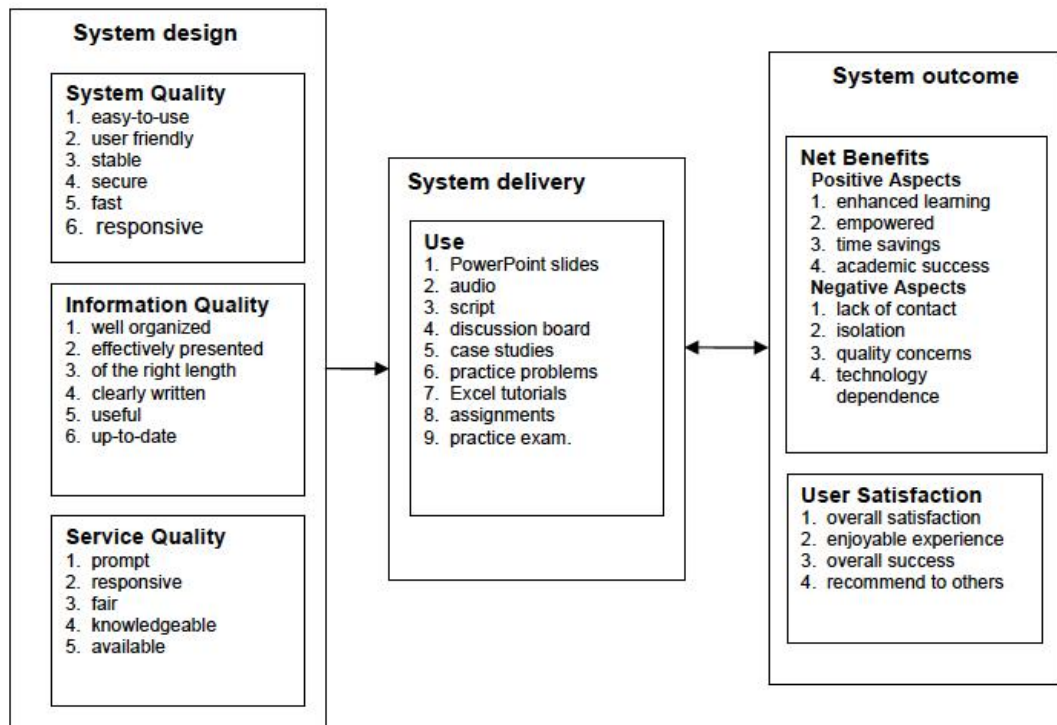
Imran (2012) expressed the challenges of eLearning in relation with its difficulties to measure Return on Investment (ROI) and since, the e-learning method is self-paced and self-learned, the attention length of the student may not be enough for him/her to learn a concept.

Ramayaha (2012) associated the challenge with stakeholders' perspective and explained that an examination of successful e-learning systems in the IS context is difficult due to different players view the benefits of the systems differently.

### 2.1.10 The IS Success Model

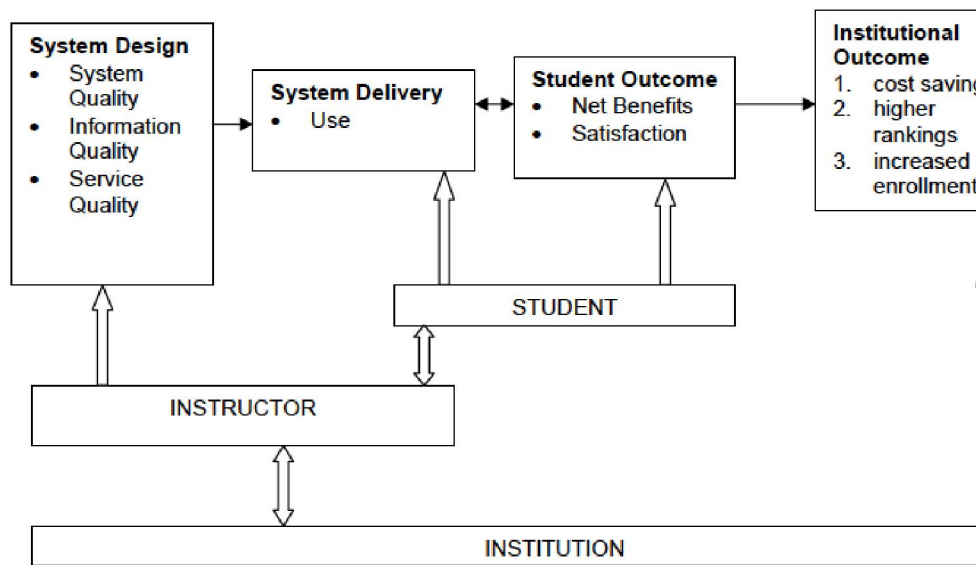
The IS success model by Delone and Mclean (2003) has emerged to be a dominant framework for system evaluation research (Adeyinka & Mutula, 2010).

**Fig. 7 eLearning Success Model adopted from Lee-Post (2009)**



As it can be seen from the figure, system design influences system delivery, which eventually determines the system outcome. In other words, well-thought and carefully crafted system design would enable system delivery best and as a result would put some one in a position to have successful eLearning outcome. In designing the system, each variable such as system quality, information quality, and service quality have their own respective role to play in determining the way the system deliver the service and its outcomes.

The figure hereunder depicts the impact of system design and system delivery on instructors; how system delivery and its outcome in terms of students satisfaction which determines institutional benefits.



**Fig. 8 Extended eLearning Success Model adopted**

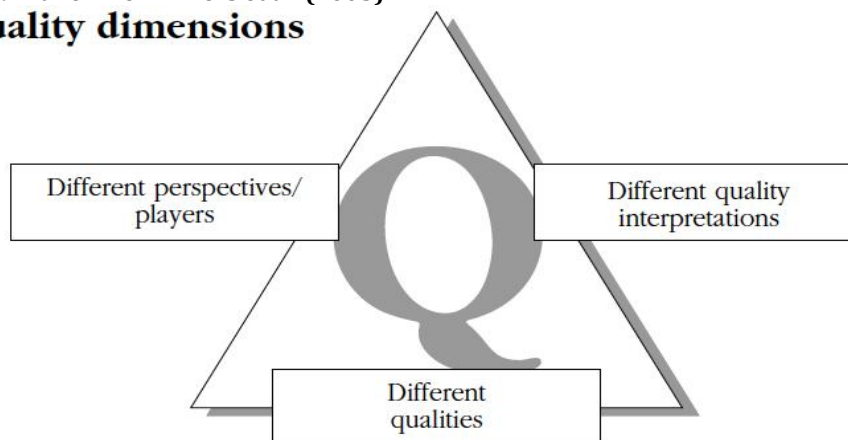
Suliman (2013) explained that **Information Quality (IQ)** is a term to describe the quality of the content of information system. Information quality is the main factor that increases or decreases the efficiency of information systems including e-learning system. The measures that have been used for information quality are information accuracy information completeness, information relevance and information timeliness. He further arguing Literatures assumed that the standards of information quality in e-learning systems represent by the following:

- **Accuracy:** correct information and data provided to the students and beneficiary from the e-learning system.
- **Renewal:** the ability of updated literatures in a timely manner.
- **Integrity:** the availability of sufficient information necessary for a specific purpose.
- **Briefly:** summary of information in exception or activities planned as needed.
- **Availability of information:** to be available and easily accessible by the user (student) or the administrator (teacher).

The prime issue in evaluating the quality of any information system is identifying the criteria by which the quality is determined. The criteria are a result of the multidimensional and interdependent nature of quality in information systems, and are dependent on the objectives and the context of the system (Alkhatabi et al., n.d.). In the issue of information quality the author acknowledged that although it is important to set standards for information quality, it is a difficult and complex issue due to the fact that there is no formal definition of information quality, as quality is dependent on the criteria applied to it.

Ehlers (2003) reinforced the Alkhatabi and his colleagues' idea that quality in general, and information qualities in particular, are subjected to various variables (dimensions). He tried to portrait his argument in the following figure:

**Fig. 9 Taken from Ehlers et al. (2003)**  
**Quality dimensions**



The figure shows:

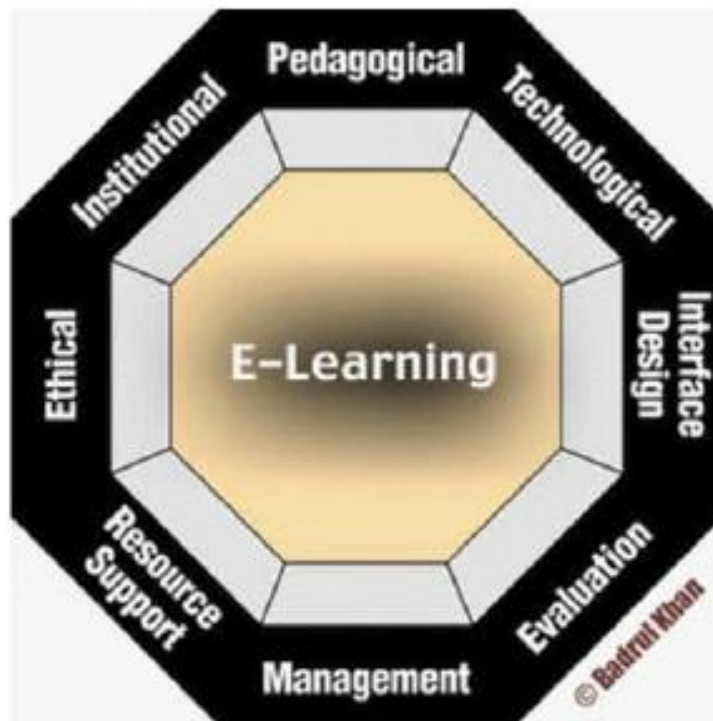
- ✚ Different interpretations of quality
- ✚ Different players with different perspectives of quality
- ✚ Different forms of quality, e.g. input, process, output

Together, these three basic elements provide a frame of reference for all debate on quality.

User Satisfaction is a measure of the successful interaction between an information system and its users. It is the extent to which learners believe the information system meets their needs. If a system meets the requirements of the users, their satisfaction with the information system will be enhanced. Conversely, if the system does not provide the necessary information, they will become dissatisfied.

Islam et al. (2011) used Khan's eLearning framework model with its respective dimensions as depicted in the pentagonal diagram herewith.

**Fig. 10 eLearning Framework taken from Islam et al. (2011)**



## **2.1.11 Multidimensional model: eLearning systems success (ELSS) Construct**

### **2.1.1.1 DeLone and McLean model approach**

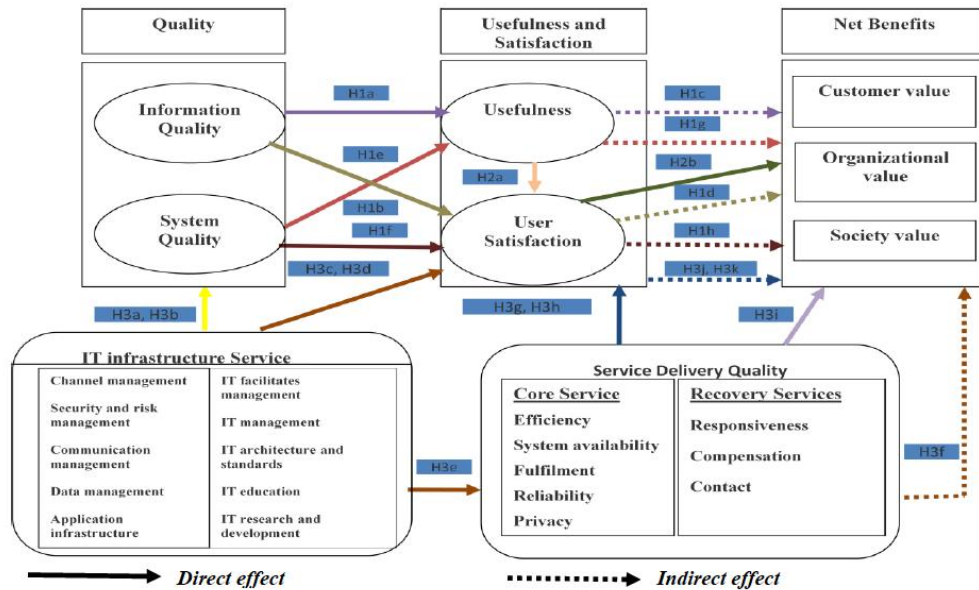
When we think of IS Model, our mind by default would think DeLone and McLean model due to the fact that these writers have done quite significant work in the area. It was this rational that let the researcher of this paper influenced to use their model to measure success of eLearning.

The DeLone and McLean model is a common technique used to assess IS success. eLearning systems are considered to be the most important IT projects in universities. However, the evaluation of these systems is still facing problems as there is a lack of measurements to evaluate the success of these projects. The DeLone and McLean model is believed to be one of the most important measurements which can be used to address this issue in the e-learning field (Alsabawy, Cater-Steel, & Soar, 2011).

E-learning system is a special type of IS. The DeLone and McLean (1992) model is one of the most widely cited IS success models. suggesting that a systematic combination of individual measures from IS success categories can create a comprehensive measurement instrument. It consists of six IS success categories or dimensions, which are: (1) system quality, (2) information quality, (3) use, (4) user satisfaction, (5) individual impact and (6) organizational impact (Wang, Wang & Shee, 2005)

The DeLone and McLean (1992) is among the most influential theories in predicting and explaining system use, user satisfaction, and IS success. The model consists of six constructs or dimensions: (1) system quality, (2) information quality, (3) systems use, (4) user satisfaction, (5) individual impact and (6) organizational impact (Freeze, n.d.).

**Fig. 11 Model to measure e-learning system success taken from Alsabawy, Cater-Steel, and Soar (2011)**



### 2.1.12 eLearning Components

Components of eLearning has been elucidated by Khan (2005) in the following manner:

- Instructional design-learning and instruction theories, instructional strategies and techniques
- Multimedia component
- Internet tools
- Computer and storage devices
- Connection and service provider
- Authoring/management programs, ERP (Enterprise Resource Planner) software, and standards
- Server and related applications

Moreover, Khan (2005) managed to relate eLearning components with its features in the following tabulated manner:

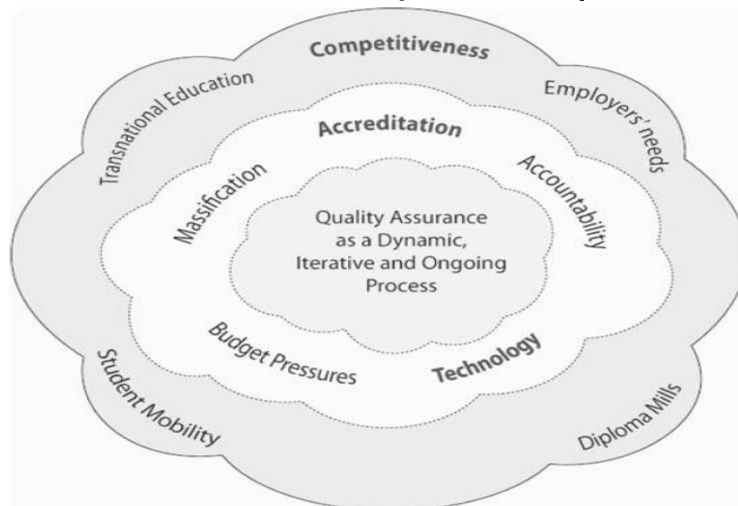
<b>E-Learning Features</b>	<b>E-Learning Components</b>	<b>Relationship to Open, Flexible, and Distributed Learning Environment</b>
<i>Ease of Use</i>	A standard point and click navigation system. Common User Interface, Search Engines, Browsers, Hyperlinks, and so on.	A well-designed e-learning course with intuitive interfaces can anticipate learners' needs and satisfy the learners' natural curiosity to explore the unknown. This capability can greatly reduce students' frustration levels and facilitate a user-friendly learning environment. However, delays between a learner's mouse click and the response of the system can contribute to the frustration level of users. The hypermedia environment in an e-learning course allows learners to explore and discover resources which best suit their individual needs. While this type of environment facilitates learning, it should be noted that learners may lose focus on a topic due to the wide variety of sources that may be available on an e-learning course. Also, information may not always be accessed because of common problems related to servers such as connection refusal, no DNS entry, and so on (Khan, 2001b).
<i>Interactivity</i>	Internet tools, hyperlinks, browsers, servers, authoring programs, instructional design, and so on.	Interactivity in e-learning is one of the most important instructional activities. Engagement theory based on online learning emphasizes that students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks (Kearsley & Shneiderman, 1999). E-learning students can interact with each other, with instructors, and online resources. Instructors and experts may act as facilitators. They can provide support, feedback, and guidance via both synchronous and asynchronous communications. Asynchronous communication (i.e., e-mail, listservs, etc.) allows for time-independent interaction whereas synchronous communication (i.e., conferencing tools) allows for live interaction (Khan, 2001b).
<i>Multiple Expertise</i>	Internet and WWW	E-learning courses can use outside experts to guest lecturers from various fields from all over the world. Experiences and instruction that come directly from the sources and experts represented on the Internet can tremendously benefit learners.
<i>Collaborative Learning</i>	Internet tools, instructional design, and so on.	E-learning creates a medium of collaboration, conversation, discussions, exchange, and communication of ideas (Relan & Gillani, 1997). Collaboration allows learners to work and learn together to accomplish a common learning goal. In a collaborative environment, learners develop social, communication, critical thinking, leadership, negotiation, interpersonal, and cooperative skills by experiencing multiple perspectives of members of collaborative groups on any problems or issues.

E-Learning Features	E-Learning Components	Relationship to Open, Flexible, and Distributed Learning Environment
<i>Authenticity</i>	Internet and WWW, instructional design, and so on.	The conferencing and collaboration technologies of the Web bring learners into contact with authentic learning and apprenticing situations (Bonk & Reynolds, 1997). E-learning courses can be designed to promote authentic learning environments by addressing real world problems and issues relevant to the learner. The most significant aspect of the Web for education at all levels is that it dissolves the artificial wall between the classroom and the 'real world' (Kearsley, 1996).
<i>Learner-Control</i>	Internet tools, authoring programs, hyperlinks, instructional design, and so on.	The filtered environment of the Web allows students the choice to actively participate in discussion or simply observe in the background. E-learning puts students in control so they have a choice of content, time, feedback, and a wide range of media for expressing their understandings (Relan & Gillani, 1997). This facilitates student responsibility and initiative by promoting ownership of learning. The learner-control offered by e-learning is beneficial for the inquisitive student, but the risk of becoming lost in the Web and not fulfilling learner expectations can be a problem and will require strong instructional support (Duchastel, 1996).

### 2.1.13 Quality Assurance

Abdous (209) emphasized the criticality of quality in eLearning and said that in the midst of the technological paradigm shift reshaping institutions of higher education, the question of quality assurance (QA) is at the forefront of leadership concerns worldwide. The argument was followed by the summarized way of pictorial representation illustrated here.

**Fig. 12 Situational Factors that affect QA. Taken from (Abdous, M. 2009)**



Al-Hajraf & Al-Sharhan (2012) advocated the criticality of quality assurance and forwarded the idea that the importance of academic standards describes the level of achievement that the educational process and strategies achieve its broader objectives. Besides, for this author, quality assurance in education works around the academic infrastructure and the developmental work which lays the foundation of quality of the institution.

## **2.2 Related Empirical Studies of eLearning System Success Dimensions**

As far as empirical research on eLearning, application, success, and dimension are concerned, several studies have been conducted in various times by different authors. As to World Bank's study by Schware (2005) in the years between 2000 and 2002, training in U.S. companies delivered in a classroom dropped by almost 10 percent, while training delivered via learning technologies, especially e-learning, increased 12 percent. Today, many large U.S. corporations are using Web-based knowledge management and proprietary learning programs, putting greater demands on institutions of higher education to produce graduates who can easily use new learning technologies (e-learning and e-training) in the workplace.

Sun's (2006) empirical evidence witnessed that eLearning dimensions (variables) such as eLearning course flexibility, eLearning course quality, perceived usefulness, perceived ease of use, and diversity in assessment are the critical factors affecting learners' perceived satisfaction.

eLearning success determinants have been the center of debate and discussion in every attempt of investigating factors affecting successful eLearning. Mohammadi (2015) conducted an empirical study on factors affecting the e-learning outcomes and draw conclusions in the Allameh Tabataba'i University, Tehran. Based on this study, user satisfaction and intention affect users' actual use positively and perceived learning assistance was well predicted by satisfaction and actual use, it was possible to concluded that content quality, service quality, technical system quality, and information quality significantly effect positively users' actual use and learning outcomes. In this study system quality appears to have greater positive effect than others.

Variables, which have been taken as the decisive factor of eLearning's success fate, also had been the concern of Lee's (2010) empirical research on predicting users' continuance intention toward eLearning. This study revealed that users' satisfaction on the eLearning system is the strongest predictor as to which extent users would be motivated to engaged in eLearning.

Lin (2011) conducted a research on eLearning continuance intention: Moderating effects of user eLearning experience and come up with empirical result on factors of eLearning. The results show that the effect of perceived ease of use on perceived usefulness is significantly stronger for users with limited eLearning experience.

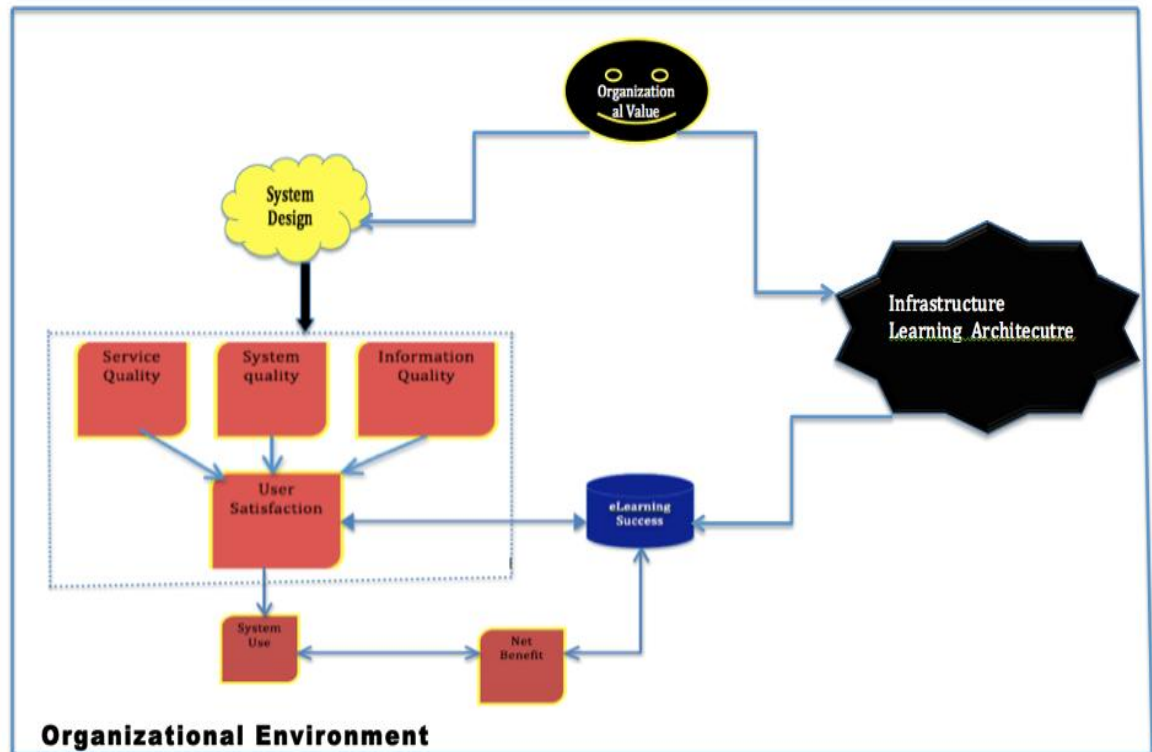
For more experienced users, perceived usefulness is found to be a more important factor than perceived ease of use in affecting attitude toward eLearning. The effect of quality attributes cumulative satisfaction on attitude is significantly higher.

Wang et al.(2007) in their scale development work to measure eLearning systems success in an organizational context, have made empirical analysis and draw a conclusion. In this connection, they advised managers to consider variables in a multidimensional analytical approach perspective and to put emphasis on various system success levels. In this study, Information Quality, System Quality, and Service Quality belong to the system developing level whereas; System Use, User Satisfaction, and Net Benefit belong to the effectiveness-influence level. Establishing strategies to improve only one success variable is, therefore, an incomplete strategy if the effects of the others are not considered. The results of this study encourage e-learning managers to include the measures of Information Quality, System Quality, Service Quality, System Use, User Satisfaction, and Net Benefit into their present evaluation techniques of e-learning systems success.

While conducting empirical research on eLearning success, Lee-Post (2009) concluded that success in e-learning is a multi-faceted construct that can be assessed along six dimensions including system quality, information quality, service quality, use, user satisfaction, and net benefits occurring in three stages such as system design success (by maximizing quality dimensions); system delivery success (by maximizing the use dimension), and system outcome success, which is maximized by net benefit and user satisfaction. The overall success of eLearning then evaluated for each dimension. A low score for any success dimension signifies a deficiency in that area and efforts can be devoted accordingly to rectify the deficiency.

## 2.3 Conceptual Framework

Fig.13 Conceptual Framework



The conceptual framework (Fig. 13) explains the underlying process, which is applied to guide this study. The six success dimensions of eLearning of DeLone and McLean IS Model determines to what extent a given eLearning system is in line with those respective dimensions and the net benefit to the organization and eLearning users. The dimensions are the launching pad to study the quality of a service. To what extent System Quality, Information Quality, Service Quality, Use, User Satisfaction, and Net Benefit contributed to the success of the eLearning system is very critical issue in addressing this study. The researcher slightly modified and used the framework developed mainly by DeLone and McLean (2003) and other models referred here in the study.

**System quality**- refers to what extent the UNECA'S eLearning system is available in all times the users (Staff) need it; is it easy to be used by users and how much it is user-friendly; to what level the system is interactive with users. System quality includes also attractiveness and appealing features of the system to the user as well.

Speed of information access must be another attribute of system quality of UNECA eLearning System.

**Information quality-** is how UNECA's eLearning System information is as per required quality. This dimension focuses on what a user need to get from the system; do the user get the right information at the right time; how the information is relevant to the user's (Staff) job; is the information sufficiently provided to the users and easy to understand; how often the information is up-to-date.

**Service quality** – This dimension deals with to what extent UNECA's ITSS department make itself available to Staff (Users) consultation and assistant demand. It is also about how the ITSS department responds to the suggestions forwarded for future eLearning system development. Service quality also is about how satisfactory the support of ITSS in using eLearning is.

**User satisfaction** - This factor has a lot to do with attitudes of the UNECA staff (user) with regard to eLearning system function. How far is perceived utility of the eLearning system is as high as Staffs' demand. Are staffs satisfied by UNECA eLearning system? and the like goes with user satisfaction.

**System Use** – this dimension deals with the frequency of use with the e-learning system and whether the e-learning system usage is voluntary or not. It is also about making sure the system is dependable.

**Net benefits-** this one refers to what extent Staffs are benefited from UNECA eLearning systems and as a result it improved your job performance. It also deals with whether the system helps to rectify problems. Moreover, it is all about the benefit UNECA draw from its eLearning system and used its strategic advantage. Net benefit is also about enabling UNECA respond quickly to change and allowed to provide better services. Cost saving and ROI is also part of the benefit from the system. How far the system is used to achieve organizational goals is an important aspect as well.

# Chapter Three

## Research Methodology and Design

This research has been conducted to assess the status of the UNECA eLearning Success. The research is descriptive and has utilized ESS, IS Model developed by the scholars DeLone and McLean (2003), to assess eLearning success by taking users (Staffs) perception against it.

### 3.1 Research Design

Non-experimental and qualitative research design has been implemented to conduct the study. Through this approach, using the IS model questionnaire, it has been possible to collect data primarily from eLearning users (Staffs) regarding their perception of the success of the system. One UNECA management member, moreover, was approached and asked about his perception of the success of eLearning system and data were collected via interview.

Beside demographic questions, the eLearning system users (Staffs) asked to answer 29 questions. Moreover, five dimensions of eLearning success i. e. System Quality, Information Quality, Service Quality, User Satisfaction, and Net Benefit has been articulated against the existing UNECA eLearning System Success. Furthermore, in order to have successful eLearning System, which can contribute to the knowledge management endeavor of the organization, an integrated and coordinated effort of UNECA management, ITSS, and other stakeholders would be critical.

So as to get a comprehensive picture of the eLearning system under study, eLearning System Success measurement questionnaire has been distributed online to users (Staff) of UNECA eLearning System. An interview with a member of the management has also been conducted. What the management perceived about the existing eLearning System vis a vis users perception has been compared and where the gap laid explained. Eventually, recommendations on what needs to be done to improve the success of UNECA eLearning System have been identified through the research and presented.

## **3.2 Sample Design**

### **3.2.1 Sample Area**

The research is conducted in United Nations Economic Commission for Africa (UNECA), Addis Ababa, Ethiopia. UNECA being an arm of United Nations in Africa is supposed to assist member states at all its best in all development aspects in particular that of capacity building. Creating opportunities for the African states to scale up their human development, among other things, is the duty and responsibility of the commission. Equipped its staffs with the state of art technology at its disposal in general and utilizing it in its eLearning System in particular, is the manifestation of its commitment to capacity building. Therefore, maintaining a successful eLearning system has a lot to do with assisting member states in all development aspects. Once UNECA manage to have knowledgeable and skillful staff, it is highly likely to the organization to be successful in assisting member states. UNECA eLearning system Serves an a learning platform of its staffs in various divisions.

The very reason that motivates the researcher to conduct the study in this eLearning system is:

- Objective of the system
- Considerable availability of various courses in the system
- The researcher is direct participant (user) of the system
- Its vicinity and convenience to the researcher
- Researchers IT background

### **3.2.2 Source and Study Population**

The study consists UNECA staffs and they are the pillars in evaluating the system using ESS, IS model and reached on conclusion and recommendation. The fact that users of the system are staffs, they are the very population of the study. So as to have comparable view, members of the management, though they are users of the system as well, are additional population of the research.

### **3.2.3 Sample Size**

As far as sampling technique is concerned the researcher used convenience sampling. So as to minimize variations attribute to any not pertinent factors in evaluating the eLearning system, data had been collected in seven working days of which five days were consecutive working days. Using his experience and judgment the researcher

determined the sample size to be 10% of the total population 600, 60. The researcher has taken such a judgment due to the fact that the smaller the sample size, the better is its management and simplicity, particularly from the time constraint point of view and being running against it.

In the same manner, members of the UNECA management were judgmentally selected and approached.

### **3.2.4 Sample Procedure**

In order to achieve better and fair results through the analysis, the researcher has tried his best to have all possible representatives in terms of gender, age, and other demographic background information have been incorporated and the detail of the procedure is as follows:

Users of the system are selected using convenience-sampling method. Hence, a total of 60 staffs were invited to fill the questionnaire online at a time. So as to minimize the possibility of not filling and send it back in the time frame stipulated, convenience sampling has been chosen by researcher. Based on this strategy, it has been possible to collect 57 responses out of 60. From this it is possible to conclude that the response rate 95% has been achieved. Among selected users 3 people didn't return the answer. Four management members were also approached and interview was conducted successfully and in time. The interview conducted was structured. The interviewees were pre-informed before the interviewer approached them. These interviewees were selected judgmentally considering their involvement in administering information technology, Human Resource Training and Development in one or other way.

## **3.3 Data Collection**

### **3.3.1 Questionnaire**

In this study the researcher used only one set of questionnaire in which eLearning system users approached. The questionnaire, with slight modification, was developed using IS model instrument. It comprises about 29 question items that are concentrating around the success of eLearning dimensions.

The questionnaire's first page was used to capture general demographic information, which is followed by subsequent pages consisting of 29 items. The questions are designed to entertain users' experience of UNECA eLearning System. Users were provided Likert Scale rating options. 'Strongly disagree' to express their extreme

disappointment or extremely unsatisfied by the system being used and Strongly Agree' to witness the eLearning system is being utilized by the staff at extremely best standard and the organization is benefit out of that.

### **3.4 Data Analysis**

Results Collected from the users (Staffs) are presented in a tabular form. Tables produced and presented hereunder demonstrate profile and responses of individual respondents. Charts as well are presented so as to make clear the analysis. Each question in the tables has been analyzed thoroughly and appropriately. Collected data was analyzed using the statistical tools-Statistical Package for Social Science (SPSS) Version 20 and Microsoft Excel 2013 version. The statistical measures applied are mean standard deviation and coefficient of variation. To assess UNECA eLearning success, data was analyzed using SPSS and calculations are applied as the methodology of the ESS, IS Model demands. Standard errors of the sampling distribution of mean of the assessment have been analyzed to control the level of quality of processed data. As far as dependence is concerned, demographic variables are independent one and the perceptions of the user over elements of the dimensions are dependent variable.

What is most important and significant with regard to this study of assessment of eLearning success is that the UNECA management in general and the specific stake holders in the area in particular can use the feedbacks to make the system in a position it is supposed to be in such a way its objectives can met.

For organizations that are established and launched their respective eLearning system, applying ESS, IS model elements are critical to evaluate their users (Staffs) perception or reflection against the existing system. Therefore, using the IS model would fit best so as to assess the success of eLearning system in terms of the selected variables (dimensions) such as System Quality, Information Quality, Service Quality User Satisfaction, Net Benefit.

For each dimensions aforesaid, IS model assesses the success on a scale of 1 to 5, for the 29 questions forwarded. The score for each dimension is compared by the respective weight given to each question. Using IS model, organizations can obtain an indication of the level of the quality of their eLearning system and can trace areas where improvement intervention is required.

So as to check measure of internal consistency of responses, in the 5 Likert-scale, Cronach's alpha calculation has been done and it shows up 0.95, which is highly acceptable as far as internal consistency measure is concerned.

## Chapter Four

### Data Analysis, Interpretation, and Presentation

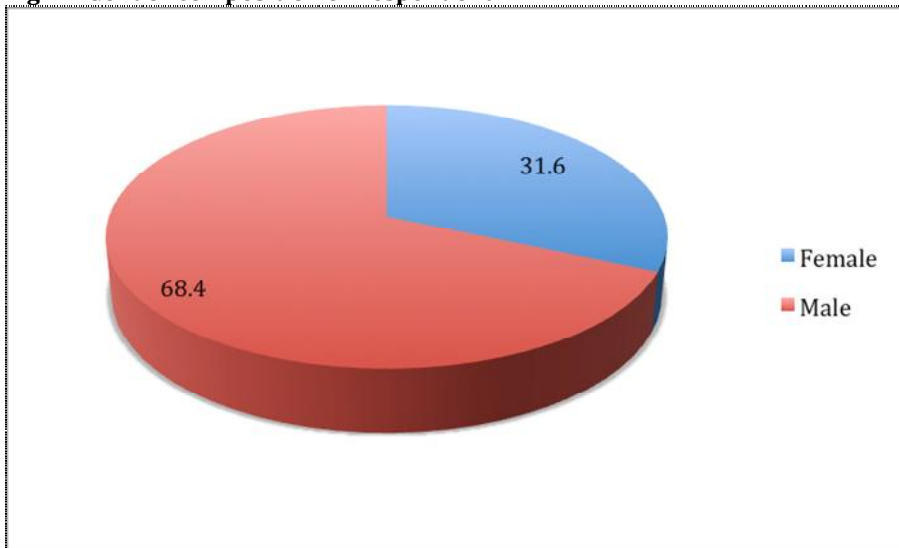
In this study statistical analysis have been made by the researcher to present general information of respondents and the results obtained. The scores obtained from the respondents are based on each respondent's assessment items and dimensions. What follows this is the discussion of implications of the scores obtained.

#### 4.1 Demographic Information of the Respondents

Following, descriptive analysis of demographic data of the eLearning system users' (Staffs) collected using the questionnaire is conducted. This analysis shows the makeup of the respondents in terms of educational level, age, gender, marital status and the like. More specifically the analysis in this questionnaire shows who at what demographic level evaluates the eLearning system in what respect of the dimensions stipulated.

As far as the distribution of the respondents terms of sex is concerned, out of 57 respondents 18 (32%) are happened to be female and the remaining 39 (68%) are men.

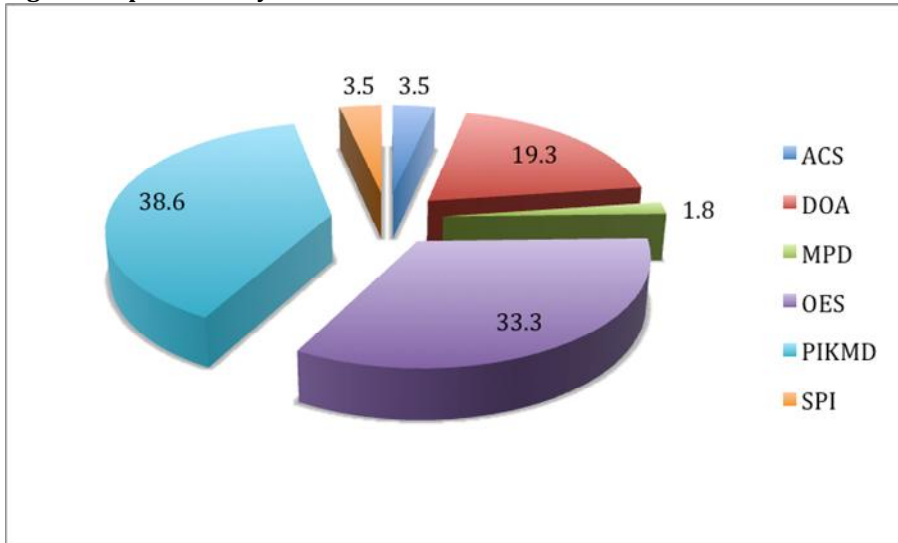
**Fig 4.1 Gender composition of Respondent**



In terms of age group, 48 (sum of 24 each) respondents' age fall between 31 – 40 and 41 - 50 and the rest sum-up 9. This need to take the management's attention that the gender balance need to be maintained.

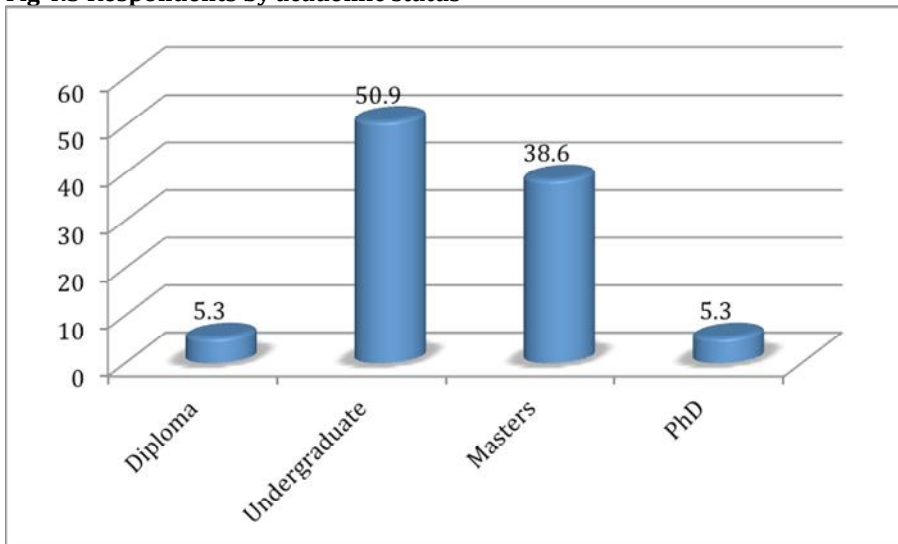
With regard to population distribution in division, Public Information and Knowledge Management Division (PIKMD)'s staff turned to be many while African Center for Statistics registered few numbers.

**Fig 4.2 Respondents by Division**



Respondents' academic distribution revealed that 29 (50%) are Undergraduate, 22 (39%) Graduates, 3 PhDs and 2 diplomas.

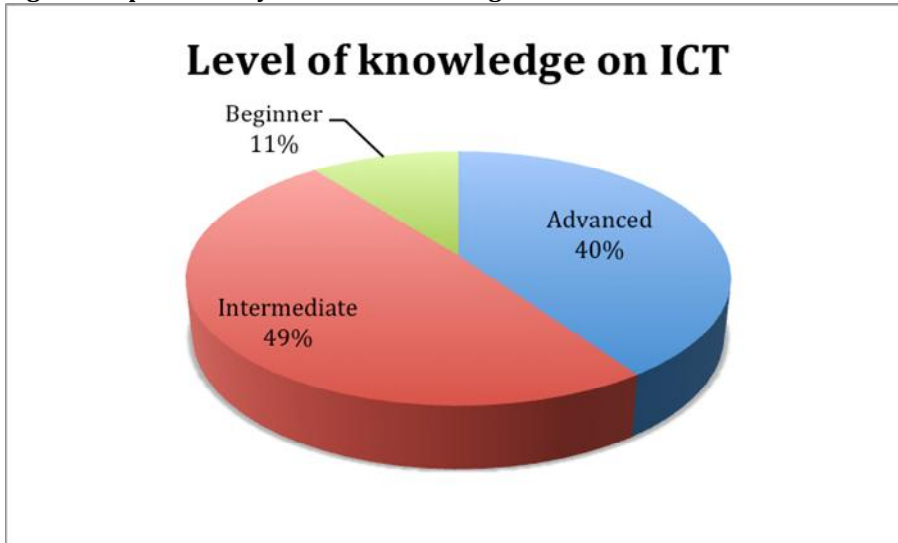
**Fig 4.3 Respondents by academic status**



Knowledge on how to use ICT tools and utilities plays great role and is very helpful in ones eLearning career. At what level someone's ICT knowledge has a lot to do with utilizing and exploiting technology resources at disposal. The higher someone has got knowledge in using ICT resources, the better s/he can apply it in eLearning endeavor. In this connection, 23 (40%) respondents happened to be advanced users of

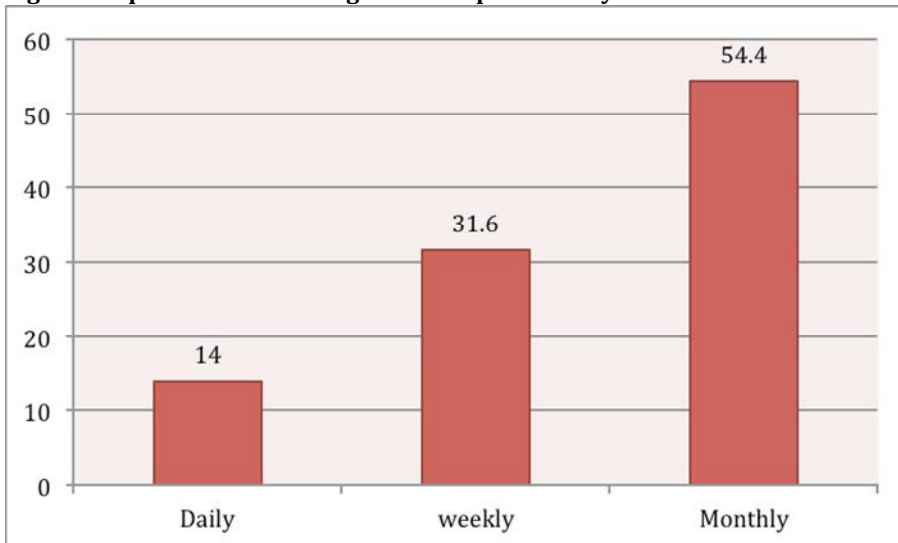
the ICT, 28 (50%) Intermediate and 6 are beginners. From this one can learn that UNECA staffs are in a better position of applying and utilizing technology tools and resources, in relation to their eLearning practices.

**Fig 4.4 Respondents by Level ICT knowledge**



As far as frequency of staffs' involvement in eLearning practice is concerned, 18 (32%) of the respondents have been engaging weekly basis, 31 (54%) monthly and 8 respondents weekly. From this we can infer that UNECA Staffs regularly engaged in eLearning activities.

**Fig 4.5 Respondents eLearning activities periodically**



## 4.2 eLearning Dimensions Score

This section of the research covered the analysis and presentation of the IS Model result obtained from respondents via the questionnaire. Results and their computation is presented hereunder. The researcher evaluated the result of frequencies in each dimensions in line with Computers in Human Behavior 23 (2007) eLearning System Success.

### 4.2.1 System Quality Scores by respondent

Availability of the system is critical factor that determines the success of the eLearning system. Quite significant number of staffs (58%) turned out against availability. As to this result, UNECA eLearning system is not available as it is supposed to be. Among other dimensions, this one is the most critical. System may not be fast easy and attractive but must, by all means, be available. Some also agreed that the availability is good but still it advisable for the management to focus on problems and keep up those good ones.

**Table 4.2 Availability of eLearning system score**

The e-learning system provides high availability	Frequency	Percent (%)
<b>Strongly Disagree</b>	7	12.3
<b>Disagree</b>	26	45.6
<b>Neutral</b>	3	5.3
<b>Agree</b>	17	29.8
<b>Strongly Agree</b>	4	7
<b>Total</b>	57	100

As to how the system is easy to use, respondents with some difference rated the system against and in favor. However, staffs, which are not happy with the system easiness, still are significant. The more easy the system, the better would be staffs involvement in the eLearning activities. As it has been argued and articulated in the theoretical and empirical studies mentioned, this dimension needs a special attention. Specially, when users' eLearning experience is limited, it needs to give attentions to the easiness of the system. Easiness to use can lead staffs to use it frequently comfortably.

**Table 4.3 : Easiness of eLearning system score**

The e-learning system is easy to use	Frequency	Percent
<b>Strongly Disagree</b>	4	7
<b>Disagree</b>	27	47.4
<b>Neutral</b>	2	3.5
<b>Agree</b>	20	35.1
<b>Strongly Agree</b>	4	7
<b>Total</b>	57	100

For the eLearning system being user friendly is very important in making user stay long in their study. Some UNECA eLearning System user confirmed the system is user friendly and some rated otherwise. The Empirical as well as theoretical studies the researcher referred give the highest weight to this dimension (Sun's, 2006). Close to 60% of the population is against the dimension and this has drawn the management's attention

**Table 4.4: Friendliness of eLearning system score**

The e-learning system is user-friendly	Frequency	Percent
<b>Strongly Disagree</b>	6	10.5
<b>Disagree</b>	28	49.1
<b>Neutral</b>	3	5.3
<b>Agree</b>	18	31.6
<b>Strongly Agree</b>	2	3.5
<b>Total</b>	57	100

As it can be seen in the tables hereunder, it is obvious to understand that 40% staffs or users of the UNECA eLearning system either disagree about the features of personalized information presentation.

**Table 4.5 : Personalized Information**

The e-learning system provides a personalized information presentation	Frequency	Percent
<b>Strongly Disagree</b>	2	3.5
<b>Disagree</b>	21	36.8
<b>Neutral</b>	11	19.3
<b>Agree</b>	21	36.8
<b>Strongly Agree</b>	2	3.5
<b>Total</b>	57	100

However, the interactivity dimension of the system has got relatively considerable (42%) positive score by staffs. This is a good indication to the UNECA management to capitalize this dimension and synchronize it to the rest of the element while working with the rest of the grievance (42%).

**Table 4.6: Interactivity features Score**

The e-learning system provides interactive features between users and system	Frequency	Percent
Strongly Disagree	4	7
Disagree	20	35.1
Neutral	6	10.5
Agree	25	43.9
Strongly Agree	2	3.5
Total	57	100

On the other hand, speed of the system is the dimension where high turnout has been observed in strongly disagree point. About 58% of the respondents responded the system lack speed while about 30% of them rated good. Here it is being wise to the management to give attention to the variable, which disappointed most of its users.

**Table 4.7: System Speed Score**

The e-learning system provides high-speed information access	Frequency	Percent
Strongly Disagree	18	31.6
Disagree	15	26.3
Neutral	7	12.3
Agree	12	21.1
Strongly Agree	5	8.8
Total	57	100

#### **4.2.2 Information quality Scores by respondent**

The content of the information in the eLearning system is one critical factor, which determines the success. Consequently respondents rated it in line with the following elements:

Table 4.8: Sufficient Information at need Score

The e-learning system provides information that is exactly what you need	Frequency	Percent
Disagree	6	10.5
Neutral	12	21.1
Agree	35	61.4
Strongly Agree	4	7
Total	57	100

As shown in the table 30% rated their disagreement while majority (68%) of the

respondents confirmed satisfactory.

Therefore, staffs witnessed that the system has been giving information they want.

Some happened to be neutral to rate and some disagree.

Table 4.9: Information at right time score

<b>The e-learning system provides information you need at the right time</b>	<b>Frequency</b>	<b>Percent</b>
<b>Disagree</b>	21	36.8
<b>Neutral</b>	10	17.5
<b>Agree</b>	20	35.1
<b>Strongly Agree</b>	6	10.5
<b>Total</b>	57	100

Of the respondents about 46% responded in favor of the dimension while about 37 % expressed their disagreement. This result witnessed that the organization should keep its momentum on good things and focus on problems raised by users of the system.

In other words, respondents agree that the system provides information at right time, enough in terms of amount, and relevant to their jobs. And this is an advantage to the UNECA management to incorporate these favorable attitudes in to its staff development strategies in general and the eLearning system in particular.

Table 4.10 : Relevance to Job Score

<b>The e-learning system provides information that is relevant to your job</b>	<b>Frequency</b>	<b>Percent</b>
<b>Disagree</b>	4	7
<b>Neutral</b>	5	8.8
<b>Agree</b>	39	68.4
<b>Strongly Agree</b>	9	15.8
<b>Total</b>	57	100

As shown in the table above, about 74% of respondents confirmed that the information provided by the UNECA eLearning system is relevant to their job. This is a good attitude form the users' perspective and the management can use this as a reference point to improve the rest of the dimensions.

The result here in the table to follow, reveals that the information being provided by the system is not enough. Of the respondents, 47.2% are not satisfied with the system's information sufficiency.

Table 4.11 : Information Sufficiency score

The e-learning system provides sufficient information	Frequency	Percent
Strongly Disagree	9	15.8
Disagree	18	31.6
Neutral	7	12.3
Agree	18	31.6
Strongly Agree	5	8.8
<b>Total</b>	<b>57</b>	<b>100</b>

As far easiness of the system information to understand is concerned, the result showed up 63% in favor of the systems dimension. Whereas considerable number of respondents are against this result, 35%. Then management need to concentrate on this problem while keeping the good things updated.

Table 4.12 : Information easiness score

The e-learning system provides information that is easy to understand	Frequency	Percent
Strongly Disagree	2	3.5
Disagree	18	31.6
Neutral	1	1.8
Agree	30	52.6
Strongly Agree	6	10.5
<b>Total</b>	<b>57</b>	<b>100</b>

### 4.2.3 Service Quality Score by respondents

Determining to what extent the service quality of an eLearning system is up to users' expectation is a very challenging and critical task. It has a lot to do with satisfaction users of a given system.

As it has been depicted in the tables follow, substantial number of users of the UNECA eLearning system are unhappy as far as online assistance is concerned. There are also users, which are happy with the available assistance. What is important to the management in this connection is focusing on those problems and keep and update those good things simultaneously.

**Table 4.13: Service Quality Scores**

The e-learning system provides a proper level of on-line assistance and explanation	Frequency	Percent
<b>Strongly Disagree</b>	8	14
<b>Disagree</b>	22	38.6
<b>Neutral</b>	7	12.3
<b>Agree</b>	16	28.1
<b>Strongly Agree</b>	4	7
<b>Total</b>	57	100

With regard to consultation, as shown in the table under, more people who did rate against. 29 (51%) of the total 57, which is more than half of the population are not happy with IS departments assistance. It goes the same for the rest of the elements, as far as support from the IS department is concerned.

**Table 4.14: IS department availability and consultation score**

The IS department staff provides high availability for consultation	Frequency	Percent
<b>Strongly Disagree</b>	7	12.3
<b>Disagree</b>	29	50.9
<b>Neutral</b>	6	10.5
<b>Agree</b>	13	22.8
<b>Strongly Agree</b>	2	3.5
<b>Total</b>	57	100

About 63% of the respondents are very unhappy about the assistance of the IS department. Unlike other dimensions, here the grievance is high and needs management's immediate intervention. The IS department must consider this problem and act accordingly.

**Table 4.15 : IS department's cooperation score**

The IS department responds in a cooperative manner to your suggestion for future enhancements of e-learning system	Frequency	Percent
<b>Strongly Disagree</b>	14	24.6
<b>Disagree</b>	22	38.6
<b>Neutral</b>	11	19.3
<b>Agree</b>	9	15.8
<b>Strongly Agree</b>	1	1.8
<b>Total</b>	57	100

With regard to support from the IS department is concerned, still much more staffs are unhappy and rate the department doesn't assist them

Table 4.16: IS support score

The IS department provides satisfactory support to users using the e-learning system	Frequency	Percent
<b>Strongly Disagree</b>	7	12.3
<b>Disagree</b>	28	49.1
<b>Neutral</b>	6	10.5
<b>Agree</b>	13	22.8
<b>Strongly Agree</b>	3	5.3
<b>Total</b>	57	100

#### 4.2.4 User Satisfaction Score by Respondents

Whatever states of art technology a given system is equipped with, unless it satisfies its users, it is good for nothing. Thus, it is critical for UNECA to devise a means to make sure its eLearning system is in line with this concept.

Respondents forwarded their reflection of their satisfaction as can be seen in the following merged tables. Accordingly, it is possible to point out where and at what point users gave highlight their concern. Quite significant number of respondents expressed their disagreement with system function, utility they received, and the totality of their satisfaction. Therefore, management of UNECA has to deal with these points and come up with some rectifications.

Table 4.17 User Satisfaction Scores

<b>Most of the users bring a positive attitude or evaluation towards the e-learning system function</b>	Frequency	Percent
Strongly Disagree	3	5.3
<b>Disagree</b>	<b>26</b>	<b>45.6</b>
Neutral	12	21.1
Agree	13	22.8
Strongly Agree	3	5.3
<b>Total</b>	<b>57</b>	<b>100</b>
<b>You think that the perceived utility about the eLearning system is high</b>	Frequency	Percent
Strongly Disagree	2	3.5
<b>Disagree</b>	<b>29</b>	<b>50.9</b>
Neutral	10	17.5
Agree	14	24.6
Strongly Agree	2	3.5
<b>Total</b>	<b>57</b>	<b>100</b>

<b>You are satisfied with the eLearning system</b>	<b>Frequency</b>	<b>Percent</b>
Strongly Disagree	5	8.8
<b>Disagree</b>	<b>29</b>	<b>50.9</b>
Neutral	3	5.3
Agree	15	26.3
Strongly Agree	5	8.8
<b>Total</b>	<b>57</b>	<b>100</b>

#### 4.2.5 Net Benefit Score

Net Benefit is all about what users (Staffs) of the system and the organization (UNECA) get out of the eLearning system. In other words, what is the benefit for staff engaged in eLearning activities, and what is the benefit for UNECA to invest on the system. Having this in to consideration it is vital to assess the system and come up with solutions for the pitfall aroused in case.

As shown in the merged table hereunder, almost in all cases, the number of respondents who said the net benefit is not as expected exceeds the number of respondents in favor of it except in cases of “The e-learning system helps you improve your job performance” where the number of people who agreed is 29 out of 57; and “The e-learning system helps you think through problems” in which 37 (64.9%) of the population agreed.

**Table 4.18 Net Benefit Score**

<b>The e-learning system helps you improve your job performance</b>	<b>Frequency</b>	<b>Percent</b>
<b>Strongly Disagree</b>	1	1.8
<b>Disagree</b>	11	19.3
<b>Neutral</b>	10	17.5
<b>Agree</b>	29	50.9
<b>Strongly Agree</b>	6	10.5
<b>Total</b>	57	100
<b>The e-learning system helps you think through problems</b>	<b>Frequency</b>	<b>Percent</b>
<b>Disagree</b>	7	12.3
<b>Neutral</b>	7	12.3
<b>Agree</b>	37	64.9
<b>Strongly Agree</b>	6	10.5
<b>Total</b>	57	100
<b>The e-learning system helps the organization enhance effectiveness and efficiency</b>	<b>Frequency</b>	<b>Percent</b>
<b>Strongly Disagree</b>	9	15.8

Disagree	19	33.3
Neutral	9	15.8
Agree	14	24.6
Strongly Agree	6	10.5
<b>Total</b>	<b>57</b>	<b>100</b>
<b>The e-learning system enables the organization to respond more quickly to change</b>	Frequency	Percent
Strongly Disagree	8	14
Disagree	23	40.4
Neutral	9	15.8
Agree	14	24.6
Strongly Agree	3	5.3
<b>Total</b>	<b>57</b>	<b>100</b>
<b>The e-learning system helps the organization provide better services to clients</b>	Frequency	Percent
Strongly Disagree	9	15.8
Disagree	19	33.3
Neutral	7	12.3
Agree	18	31.6
Strongly Agree	4	7
<b>Total</b>	<b>57</b>	<b>100</b>
<b>The e-learning system helps the organization save cost</b>	Frequency	Percent
Strongly Disagree	8	14
Disagree	15	26.3
Neutral	10	17.5
Agree	14	24.6
Strongly Agree	10	17.5
<b>Total</b>	<b>57</b>	<b>100</b>
<b>The e-learning system helps the organization to speed up transactions or shorten time to do tasks</b>	Frequency	Percent
Strongly Disagree	3	5.3
Disagree	22	38.6
Neutral	14	24.6
Agree	14	24.6
Strongly Agree	4	7
<b>Total</b>	<b>57</b>	<b>100</b>
<b>The e-learning system helps the organization increase return on investment</b>	Frequency	Percent
Strongly Disagree	2	3.5
Disagree	22	38.6
Neutral	15	26.3
Agree	14	24.6

Strongly Agree	4	7
Total	57	100
<b>The e-learning system helps the organization to achieve its goals</b>	Frequency	Percent
Strongly Disagree	5	8.8
Disagree	19	33.3
Neutral	10	17.5
Agree	18	31.6
Strongly Agree	5	8.8
Total	57	100

#### 4.2.6 eLearning System Success Dimensions Weight Score

Respondents were asked to give weight to each dimensions based on their importance to them. The rate was out of 100%. Accordingly, user satisfaction has got, relatively the first rank followed by System Quality and the rest of the dimensions. respondents give high priority to their satisfaction which is natural. Others follow accordingly and this is an indication for the management of the eLearning system where to focus.

#### 4.2.7 eLearning System Success Dimensions in Relation to Demography

In this study, none of the demographic variables have a special influence on any of the dimensions. Be it Gender, Academic Status, Level of ICT knowledge, or other, no dimension has been observed being influenced by any element of the model. The frequency and the trend showed that the agreement or disagree is rated irrespective of these demographic data.

#### 4.2.8 Score of Weight of Dimensions

Respondents requested to rate each dimension per their importance to them. As demonstrated in the table hereunder, user satisfaction has been given the highest rank. This indicates that their satisfaction precedes the rest of the dimensions. This certifies that ideas and arguments articulated in theoretical as well as in empirical studies go in line with this result. The second most important to the respondent is System Quality.

**Table: 4.19 Mean Score of Weight of Dimensions**

Dimension	Rank	Mean No. of respondent	Maximum	Minimum
User Satisfaction	1	25	60	5
System Quality	2	21.32	50	5
System Use	3	19.39	5	50
Service Quality	4	16.93	40	10
Information Quality	5	17.54	40	10

#### **4.2.9 eLearning users (staffs') other comments**

At the end part of the questionnaire, respondents were asked to write their comments on some issues, which were not addressed in other part of the questions. As a result some of them expressed their concern as far as the UNECA eLearning System Success is concerned. The researcher, really, found the following comment very interesting, due to the fact that it complements and supplements the research undertaken.

*e-learning course designs need to incorporate trainees' learning needs, levels as well as preferences - e-Learning awareness and culture needs to be developed among staff and across the organization - e-Learning impact analysis needs to be in place on regular basis so as to understand the effectiveness of the learning program - Appropriate career development policies, rules and regulations need to be developed and be accessible to staff.*

This comment is very clear and straightforward and the researcher believes it would be a good input for the management of the UNECA to improve its eLearning system.

As it can be traced in the respondents rating in connectivity and availability of the connection, poor internet connection has been the major problem of the system. The following single-line comment deals with it.

*Since eLearning is system dependent, it requires efficient connection to Internet.*

The following comment is very critical, up-front and focused on problems prevailing in the organization. Hence it is being wise for the management of the UNECA to focus on it.

*Resources are not readily available when needed. The network quality and availability is a critical problem in UNECA e-Learning system.*

The next comment is directed to organizational efficiency and effectiveness in the endeavor of implementing eLearning and needs the assessment to take place.

*The system should be audited periodically in order to ascertain its efficiency and related parameters.*

The other respondent left the comment simply by saying the system must be improve.

*It should be improved.*

Somehow very interesting and different from other comments comes hereunder. It is all about the shortcomings of eLearning vis a vis face-to-face learning. It is also about the benefit of eLearning.

The comment immediately hereunder is almost equivalent to the IS Model dimension brought to this study which determine the success of eLearning system. it gave emphasis on improvement areas.

*Need to improve more in terms of: system quality service quality and information provision*

#### **4.2.10 Interview vis a vis eLearning Dimensions**

In connection with this study the researcher conduct and an interview with one of the member of management and Training Coordinator, in Human Resource Staff Development Section. He approached the status of UNECA eLearning system in two broad ways: Opportunities and Challenges. As his explanations, there is a general trend for entire UN organization to totally shift from the traditional one to eLearning system. Considering this, the organization has been investing on it and staffs have the privilege to utilize it at its best possible.

With regard to Challenges, he tried to address it in two ways. The first is organizational challenge and pitfall. The first problem he mentioned here is the organization has never been in a position to evaluate return on its investment. The eLearning system has never gone through assessment. He associate the second problem with staffs' attitude and commitment towards utilizing the eLearning opportunities. He argued that there is a tendency of resisting the technology and many people don't want to abandon the traditional learning system and he doesn't agree with the idea that Internet connectivity is the problem to pursue eLearning activity in UNECA. He challenged this idea by saying that there are courses being

offered offline. He also mentioned that it is critical for the staff to equip themselves with various skill that positively attributed for the successful implementation of eLearning. Communication skills and ICT technical skills are vital and can influence the learning process.

# Chapter Five

## Conclusion and Recommendation

### 5.1 Conclusion

The findings of eLearning Success Assessment are summarized in terms of IS Model instrument scores and demographic variables in the following manner:

### 5.2 eLearning System Success in UNECA

The research showed that the UNECA eLearning System users revealed their reflection based on the dimensions articulated in the research. Accordingly, almost in all cases fairly many of the respondents forwarded dissatisfaction in the eLearning system. Be it System Quality, Information Quality, User Satisfaction, Service Quality, and Net Benefit, majority of the respondents concluded that the system is not as to the IS Model dimensions requirement. Indeed it is true that in some of the dimension such as Usefulness of the eLearning to respondents career and job related activities, interactivity of the system, and content of the system have got the respondents agreement to the respective dimensions.

Considerable number of respondents expressed that UNECA eLearning system is not in line with System Quality elements. As a result 22 respondents rate their disagreement and other 18 expressed their extreme deviation, strongly disagree. Hence **System Quality's** mean disagreement is 40% plus 31% of strongly disagreeing. On the other hand a mean of 19.33% is in favor of the dimension. The rest is for those in different.

With regard to **Information Quality**, the result turned out in favor of the model and is something that can please UNECA management. The content of the information, its relevance to ones' job was found to be good in the eyes of majority of the respondents. The mean rate of 60% in favor is the maximum achieved in any of the dimensions so far. However, within this dimension, there are notable numbers of people who are not satisfied in quality of the information and this needs the management's attention as well. A mean of 33% registered with their disagreement.

While keeping what is good in the system, the management need to bring problems suggested in to considerations so a to push the system to the right track.

**Service Quality** is among dimensions, which has got a great blow from majority of the respondents. This is the area where users of the UNECA eLearning system expressed their disappointment. A mean of 60 % dissatisfaction has been observed. Commensurably, the management of the organization needs to work here hard so as to rectify the problem and come up with solutions.

**User satisfaction** is the pillar of every system. When users satisfied with it, they would be motivated to utilize it and there is high possibility of success in effectiveness and efficiency. Unfortunately, this is one of the dimensions users' extreme disagreements and dissatisfaction has been exhibited in the result of this research. A mean of 55% in users' disagreement witnessed that this dimension need to get the concern of UNECA management.

Users of the UNECA eLearning system rated in favor and against of the **Net Benefit**. Accordingly, more than half of the population with mean of 55% believed that neither the organization nor themselves are beneficiary of the system. Therefore, it is hardly possible for the management to ignore this problem. The very rational of investing in any sector is to bring something better, be it implicit, explicit; tangible, intangible; financial or not. Hence, it is critical for the UNECA to assess the success of its eLearning system and make sure it is returning what it is supposed to (ROI).

To assess whether the UNECA eLearning system is as to the requirement of the IS Model dimensions and elements is the concern of this research. To explore the scenario, major aspect of the dimensions has been used to assess the eLearning system objectively and results revealed that substantial number of users are not happy and satisfied with the system vis a vis elements stipulated in the IS model. Finding of the study witnessed that UNECA eLearning system is not in line with its dimensions discussed in the theoretical and empirical analysis in the literature, in most cases. It is, therefore, critical for the UNECA management in general Staff Development and Training Section in particular to give due attention to the problems aforesaid and try to rectify them as early as possible before they go too far to control. Specifically, it is vital to look in to users' satisfaction where it all begins. At the same time, it needs to know the status of the system in a planned manner in such a way it can assure Return

on Investment (ROI) is maintained. Still, it is important to work on those dimensions where respondents gave green card.

### **5.3 Recommendation**

So as to maintain those dimensions, which have got respondents agreement, and to bring those rated against to the required, it needs a holistic approach of problem solving. To bring UNECA eLearning system successful, the following actions need to be taken:

- Management of UNECA need to approach each dimension and solicit answers which can synchronize to the rest of the elements to bring the entire system solution. System quality must be tuned in such a way that creates satisfaction to the user of the system. And moreover, the system quality should contribute to the service quality, information quality and the like.
- The management needs to make sure that the environment is conducive and motivator to staffs to utilize the eLearning at most.
- Critical problems, such as system unavailability, absence of assistant from IS department, and internet connection failure and other problems forwarded by respondents, must be addressed considering other dimensions as well.
- Specific problems, particularly forwarded by respondents of this research, must be approached system wise. Network interruption, and related problems need to be resolved as fast as possible.
- Prompt and all-time assistance from the ITSS/IS department must be provided, be it online or physically.

The management need to make sure that information in the system are up-to-date, timely, relevant to staffs job, and sufficient. It is also critical to the management to create and maintain comfortable, interactive, user-friendly eLearning system. Moreover, management must make sure all devices and medias of eLearning are functional and in accordance with the users' requirement. Planned and periodic eLearning assessment practice is must be conducted so as to rectify problems as early possible. On top of all other things, the management needs to know the status of its return on investment. The very limited budget is being obligated to eLearning activities. This investment needs to get tantamount return out of it.

# **eLearning Success Survey Questionnaire**

## **General Instruction**

This questionnaire is designed to gather relevant data on eLearning Success of UNECA from UNECA Staffs. The information is required for academic research purpose. Staffs' genuine responses are very important because they will make the analysis more realistic.

The questionnaire has the following sections:

- The first section consists of general demographic questions.
- The second section consists of questions designed to ascertain the eLearning Success of UNECA is achieved.
- The third section is intended to rank the importance of the Five eLearning service quality features.
- Finally Library users can give any other personal comment which has not been addressed by the questions in the blank space provided.

Please go through all questions in all four sections and give answers to all. Please note that this questionnaire is anonymous.

**Thank you for your time and cooperation!!**

# eLearning Success Survey Questionnaire

Dear respondents,

This questionnaire is designed to gather relevant data on eLearning success of UNECA. The information is required for academic research purpose; you are therefore, kindly requested your cooperation to respond to the subsequent questions with genuine and independent mind. This will make the analysis more realistic and useful. Please note that you are not required to write your name.

**Thank you for your time and cooperation!!**

N.B. Please give your answers by marking 'X' in the Box provided.

## I. General Information

1. Gender: Male  Female
2. Division: \_\_\_\_\_
3. Nationality: \_\_\_\_\_
4. How often you engaged in the eLearning activity?  
Daily  Weekly  Monthly
5. Level of Education:  
Less than High school   
High School   
Undergraduate   
Masters   
PhD
6. Marital Status:  
Married

Single

Divorced

Widowed

7. Age

18-30

31-40

41-50

51- 60

61-70

Above 70

8. Level of knowledge on ICT

Advanced

Intermediate

Beginner

Thank you for your cooperation

## II. eLearning Users' reflection

**N.B.** Below are lists of statements describing expected eLearning success variables. Please show the extent to which each statement is in conformity with your experience of eLearning in UNECA.

The numbers indicate the following

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Reflection Statement	1	2	3	4	5
<b>System Quality</b>					
The e-learning system provides high availability					
The e-learning system is easy to use					
The e-learning system is user-friendly					
The e-learning system provides interactive features between users and system					
The e-learning system provides a personalized information presentation					
The e-learning system has attractive features to appeal to the users					
The e-learning system provides high-speed information access					
<b>Information quality</b>					
The e-learning system provides information that is exactly what you need					
The e-learning system provides information you need at the right time					
The e-learning system provides information that is relevant to your job					
The e-learning system provides sufficient information					
The e-learning system provides information that is easy to understand					
The e-learning system provides up-to-date information					
<b>Service quality</b>					
The e-learning system provides a proper level of on-line assistance and explanation					
The IS department staff provides high availability for consultation					
The IS department responds in a cooperative manner to your suggestion for future enhancements of e-learning system					
The IS department provides satisfactory support to users using the e-learning system					
<b>System Use</b>					
The frequency of use with the e-learning system is high					
The e-learning system usage is voluntary					
The e-learning system is dependable					
<b>User satisfaction</b>					
Most of the users bring a positive attitude or evaluation towards the e-learning system function					
You think that the perceived utility about the elearning system is high					
You are satisfied with the e-learning system					
<b>Net benefits</b>					
The e-learning system helps you improve your job performance					

The e-learning system helps you think through problems					
The e-learning system helps the organization enhance effectiveness and efficiency					
The e-learning system enables the organization to respond more quickly to change					
The e-learning system helps the organization provide better services to clients					
The e-learning system helps the organization save cost					
The e-learning system helps the organization to speed up transactions or shorten time to do tasks					
The e-learning system helps the organization increase return on investment					
The e-learning system helps the organization to achieve its goal					

### III. eLearning Success Dimensions

**N.B.** Listed below are 5 variables pertaining to UNECA eLearning System Success. I would like to know how much each of these variables is important to you. Please rate each feature out of 100 points according to the importance (weight you give). Make sure the points add up to 100.

No.	Dimension	Explanation	Points
1	System Quality	Availability, easy to use, interactive, speed	
2	Information quality	Info. as to your need, at right time, relevant to your job, sufficient info. easy to understand, uptodate	
3	Service Quality	Proper online assistance and explanation, high availability for consultation, the ITSS is cooperative to assist, ITSS satisfactory support	
4	System Use	Frequency of use in the system is high, I use eLearning system voluntarily, the eLearning system is dependable	
5	User Satisfaction	Utilization of UNECA eLearning system is high, I am satisfied with the eLearning system	
<b>Total</b>			<b>100</b>

#### Other Comments

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## **Interview Questions**

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- **How do evaluate UNECA eLearning System?**
- **Do you think UNECA eLearning System is as to IS dimension requirement?**
- **Does UNECA ever assess its eLearning System?**
- **What do think are challenges and opportunities of UNECA eLearning System?**

## Declaration

I, the undersigned, declare that this thesis is my work and all sources of materials used have been dully acknowledged.

Name \_\_\_\_\_ Signature \_\_\_\_\_

Place \_\_\_\_\_ Date of Submission \_\_\_\_\_

This thesis has been submitted for examination with my approval as a University

Advisor. Signature \_\_\_\_\_

Name \_\_\_\_\_