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Fundamentals of E-Learning Models: A Review

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Abstract: *This paper is review of the basic models of e-learning process. The different models are implemented different purposes in e-learning. Wide range of e-learning theories and models are evolving day to day according to the domain of e-learning and learning environment. Here we have précised some of the fundamental models which are used by different researchers for educational technology enhancement to take advantage of opportunities to develop effective learning strategies among students for dealing with web information overload and varying information quality. In fact, good teaching implies of course that, in order to develop effective learners, teachers need to be visible. These models plays very important role for e-learning process development and enhancement.*

Keywords – *E-learning, Educational Technology web information, information quality , effective learners*

I. INTRODUCTION

E-learning is the application of information technology in the teaching and learning process. Educational technology is the effective use of technological tools in learning. Educational technology is not restricted to high technology .Nonetheless, electronic educational technology, also called e-learning, has become an important part of society today. E-learning comprises an extensive use of digitization approaches, components and delivery methods. For example, m-learning emphasizes mobility, but is otherwise indistinguishable in principle from educational technology[1]. Educational technology includes numerous types of media that deliver text, audio, images, animation, and streaming video, and includes technology applications and processes such as audio or video tape, satellite TV, CD-ROM, and computer-based learning, as well as local intranet/extranet and web-based learning. Information and communication systems, whether free-standing or based on either local networks or the Internet in networked learning, underlie many e-learning processes. Models of e-learning describe where technology plays a specific role in supporting learning. These can be described both at the level of pedagogical principles and at the level of detailed practice in implementing those principles. Thus the models can be used to evolve new methods and to study enhanced learning through this methods[2][3] .This paper summarizes some effective and evolutionary models used for e-learning and enhancement of e-learning process.

II. E-LEARNING CONCEPT

2.1 Definition: 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) in some way to provide training, educational or learning material. (Derek Stockley 2003)

2.2 Importance of e-learning : Elearnig is having different benefits over traditional learning process[4]. E-learning-----

- **can be either an asynchronous or synchronous activity:** Traditionally, e-learning has been asynchronous, which means there is no predetermined time for the learning to take place. Everyone can go at their own pace, and take their time to learn what they need to know, when they need to know it. However, more synchronous e-learning is now being offered through web conferencing and chat options. The great thing about e-learning is it gives you the option to do one, or both.
- **has a global reach:** E-learning can simply be placed online and easily accessed by people around the world. There is no need for expensive travel or meetings across multiple time zones.
- **spans multiple devices/mobile:** Online courses can work on computers as well as on mobile devices, such as smartphones and tablets. This means e-learning courses can literally be in the hands of the people who need them, at all times.
- **is just-in-time/needs-based:** It's possible to create, publish, and share a course within a few hours. The software is so easy to use that almost anyone can create engaging courses.
- **reduces costs:** All of the above-mentioned factors result in a cost savings for organizations that use e-learning courses to replace some of their traditional instructor-led training.

2.3 Types of e-learning: There are fundamentally two types of e-Learning:[5][6]

Synchronous training
Asynchronous training

1. Synchronous[7]**,** means "at the same time," involves interaction of participants with an instructor via the Web in real time. For example – VCRs or Virtual class rooms that are nothing else but real classrooms online. Participants interact with each other and instructors through instant messaging, chat, audio and video conferencing etc and what's more all the sessions can be recorded and played back. Its benefits are:

- Ability to log or track learning activities.
- Continuous monitoring and correction is possible
- Possibilities of global connectivity and collaboration opportunities among learners.
- Ability to personalise the training for each learner.

2. Asynchronous[7], which means "not at the same time," allows the participants to complete the WBT (Web-based training) at their own pace, without live interaction with the instructor. Basically, it is information that is accessible on a self-help basis, 24/7. The advantage is that this kind of e-Learning offers the learners the information they need whenever they need it. It also has interaction amongst participants through message boards, bulletin boards and discussion forums. These include computer based training,(CBTs) modules on CD-Rom's, Web based training accessed through intranet (WBTs) or through well written articles and other write ups. Its advantages are:-

- Available 'just in time' for instant learning and reference.
- Flexibility of access from anywhere at anytime.
- Ability to simultaneously reach an unlimited number of employees.
- Uniformity of content and one time cost of production**.**

III. E-LEARNING MODELS

1) Demand-Driven Model(MacDonald -2001)
2) Strategic e-Learning Model
3) E-learning Acceptance model- Technology acceptance model, Unified theory of acceptance and use of technology
4) Instructional design model- Gagne's Nine Events of Instruction model, ADDIE model, Rapid Prototyping model, Community of enquiry model
5) E-learning Life –cycle model
6) **Laurillards conversational model**

3.1. Demand- Driven Model(MacDonald-2001) [8][9][10]

The model shown in Figure 3.1 is called 'demand-driven learning model' and was developed in Canada as a collaborative effort between academics and experts from private and public industries (MacDonald et al 2001). The model discusses the technology learning management system, contents and services. The technology is a support or a tool to achieve the desired learning outcomes in a cost-effective way.

Primary goal of model is to encourage academics to actively participate in the development and use technology in teaching process. (Elmarie Engelbrech,2003).

This model highlights the importance of realizing the changing needs of learners and instructors as well as pedagogical changes and thus changes must be made in content and services.

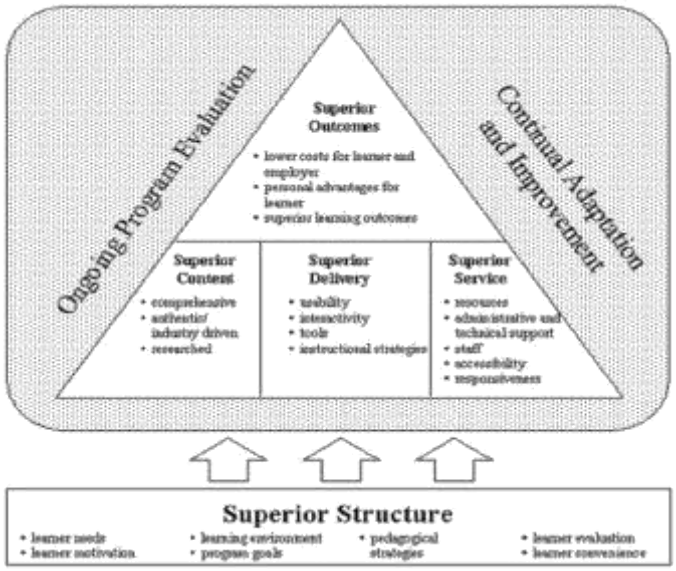

Figure 3.1 The Demand Driven Learning Model (DDLM) (MacDonald, C. J., Stodel, E., Farres, L., Breithaupt, K., and Gabriel, M. A. (2001).

3.2 Strategic e-Learning Model: [11][12][13][14]]

3.2.1 Strategic e-learning Model – A Metacognitive Perspective (Meng-Jung Tsai,2009)[13]

The strategic learning (Weinstein, 1994; 1998) is focused on students as active, self-determined individuals who process information and construct knowledge.

This model explores the need of online learners experience and their problems which they may have never encountered before in traditional learning environments; for example, how to handle the feelings of isolation and how to solve online technological problems by themselves. The model has the learner at its core, and around this core are three interactive components that explain successful learning: skill, will, and self-regulation.

Recent research explore online inquiry-based learning and claim that higher level cognitive strategies facilitate student knowledge construction (Salovaara, 2005) and development of student metacognitive strategies (Kramarski & Gutman, 2006; Quintana, Zhang & Krajcik, 2005).

The Strategic e-Learning model explains and evaluates student e-learning from metacognitive perspectives. The model framework is constructed and illustrated by four dimensions of characteristics of e-learning environments and three core domains (perceived-skill, affection and self-regulation) of student e-learning strategies. y. This instrument provides a diagnostic instrument for e-learning researchers, system designers, curriculum developers and instructors to evaluate students' e-learning strategies in their experiment, design and development.

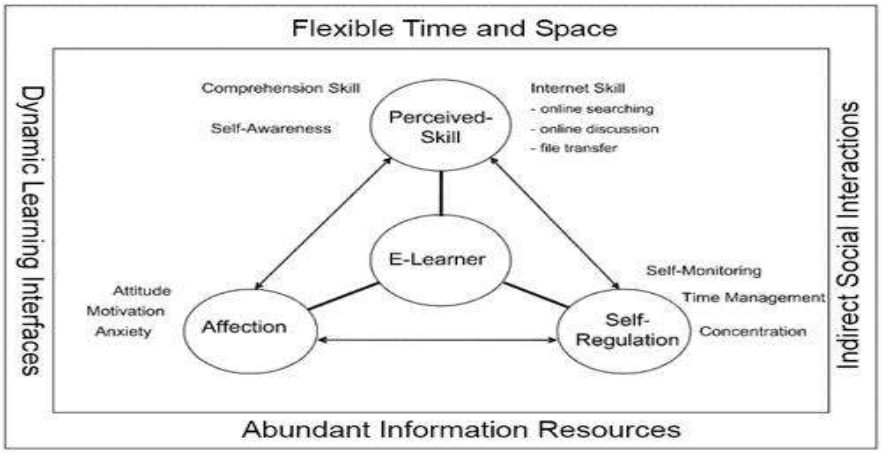

Figure 3.2 . The Model of Strategic e-Learning- Metacognitive perspective

This model can be used to profile how students interact with the complex e-learning environments when they are involved with Internet-based learning. In order to further investigate and modify this model in the future, this study developed an instrument for examining student e-learning strategies. The details are presented in the following section.Based on the above model, the Online Learning Strategies Scale (OLSS) is developed as an instrument to evaluate student online learning strategies.

Future studies should also explore the relationships between student online learning strategies and their online learning achievements. In addition, it is important to examine the role played by individual differences in student online learning strategies, for example, the influences of the epistemological views of students, or the relationships of those views with online learning strategies. Finally, the learning strategies included in OLSS are general online learning strategies, and effective learning strategies may be discipline specific. Therefore, further research is required to investigate the appropriateness of the proposed instrument for various online learning activities such as online searching and online discussion.

3.2.2 Funnel Model for implementing e-learning [11] (Mohamed Jama Madar, Dr. Oso Willis, 2014)

Funnel model as a solution for the problems of implementation of E-learning in tertiary education institutions. While existing models such as TAM, theory-based E-learning and pedagogical model have been used over time, they generally been found to be inadequate because of their tendencies to treat materials development, instructional design, technology, delivery and governance as separate and isolated entities. The Funnel model enhances all these into one and applies synchronously and asynchronously to E-learning implementation where the difference only is modalities. Such a model for E-learning implementation has been lacking. The Funnel model avoids ad-ad-hoc approach which has been made other systems unused or inefficient, and compromised educational quality. Funnel model should help tertiary education institutions adopt and develop effective and efficient E-learning system which meets users'

Successful implementation of E-learning can only be achieved by joining three interrelated components as proposed in the final model. Funnel-shaped E-learning implementation model, displays the interaction between these three components. The Funnel Model is designed to solve the mismatches between curriculum design of E-learning and its delivery. The other preceding models have either focused only usability, or on pedagogy or on technology. In fact, the TAM and Theory-Based Models do not have governance and finance, and materials development and instructional design, which are key in any educational endeavor. Funnel model takes curriculum or materials development together with beneficiaries' analysis when implementing E-learning. This is followed by instructional design, which is a pedagogical model. The Funnel Model requires that teaching and learning materials be put in place and delivery mode designed. Secondly, technological design can be either synchronous or asynchronous since technology is only a tool to convey content to learners. The Funnel Model pays attention to usability and availability of technology to ensure that technology matches instructional design of the teaching materials. The Funnel Model also incorporates administration, which encompasses governance and finance, being aware that sustainability of any system depends on its management. This component is a central axis of this model because of high cost of technology investment and other resources required to develop a fully-fledged E-learning system. The elements of the Funnel Model are depicted in following figure 3.3.

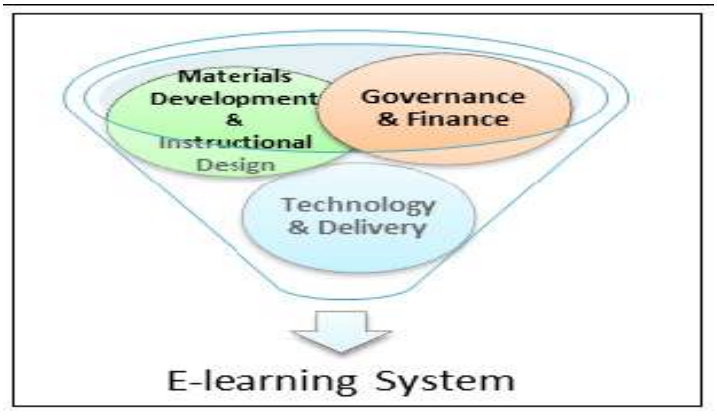

Figure 3.3. Funnel Model for implementing e-learning

This model integrates the three elements (pedagogy, technology and governance) of strategy implementation and ensures that each component contributes maximally to the realization of E-learning objectives.

The model is flexible, adaptable, and applicable to all institutions and to all concepts because it is requirement driven. The model consists of three coordinated components deemed necessary for establishing demand based E-learning system. These components are materials development and instructional design which is the first strategy to be performed followed by role of governance and finance as well as functions and responsibilities of technology and delivery. These elements are complementary since the model is designed in hierarchical order in the sense that the completion of stage is followed by the next and they are again interrelated.

3.3 E-learning Acceptance Model (ELAM)

E-learning acceptance means technology acceptance to adapt, support and facilitate learning process by information and communication technology (Jenkins & Hanson, 2003). E-learning means using different ICT tools like computers,laptops,tablets, I-Pads,smart phone,internet,local telecommunications and other infrastructures,etc. and contents created with this tools like audio, vedio,animations,graphics and many more for effective learning and to maximize performance levels of learners .[12]

This facilitation can be enhanced by using appropriate and effective applications based on different e-learning theories and frameworks with models considering the learning environments i.e. in business, pedagogical use(education),research and development, corporate learning, personalized leraning etc.

The most popular acceptance model is TAM i.e.Technology Acceptance Model and Unified theory of acceptance and use of technology[13]

3.3.1 E-learning Technology Acceptance Model[14]

The other popular available model in implementing E-learning technology is the Acceptance Model developed by Davies in 1989, which is based on user requirements. The model is based on the premise that both students' perception of E-learning use and its perceived usefulness affect users' intention. According to this hypothesis, one fundamental determinant of successful implementation of E-learning is user acceptance. The TAM model consists of three variables; (a) perceived usefulness, (b) perceived ease of use, and (c) intension to use. This model focuses on the use of E-learning technology for content management but does not consider either the pedagogical aspects of E-learning or planned implementation of E-learning system. The main features of the TAM Model are shown in Figure 3.4.

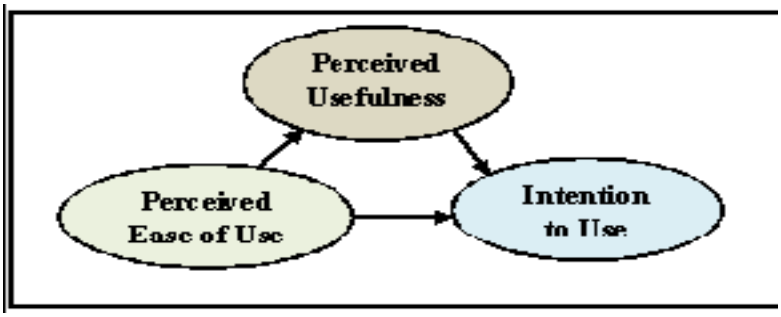

Figure 3.4: Technology Acceptance Model Adapted from A.A, Davies, (1989)

The TAM Model depicted in Figure 3.4 consists of three correlated components. First is user interface and usability of technology; the second is the usefulness of E-learning system, and the third component is users' intention. According to the construct of the TAM Model, perceived ease of use influences perceived usefulness of E-learning and these together influence students' intention to use of the E-learning system. While TAM Model makes great effort to cover for the weakness of theory-Based Model, it does not consider other components of E-learning system such as pedagogy, governance and curriculum design, which are the foundation of a fully-fledged E-learning system. Additionally, this TAM Model is incomplete due to its limitation to user interface or technology usability only. Technology is not everything but only a complementary factor in establishing E-learning system, be that asynchronous and synchronous.

3.3.2 **Unified theory of acceptance and use of technology** [14] [15]

The unified theory of acceptance and use of technology (UTAUT) is a technology acceptance model formulated by Venkatesh and others in "User acceptance of information technology: Toward a unified view". The UTAUT aims to explain user intentions to use an information system and subsequent usage behavior. The theory

holds that four key constructs: 1) performance expectancy, 2) effort expectancy, 3) social influence, and 4) facilitating conditions; being the first three direct determinants of usage intention and behavior, and the fourth a direct determinant of use behavior. Gender, age, experience, and voluntariness of use are posited to moderate the impact of the four key constructs on usage intention and behavior. The theory was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain information systems usage behaviour (theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer use, diffusion of innovations theory, and social cognitive theory).

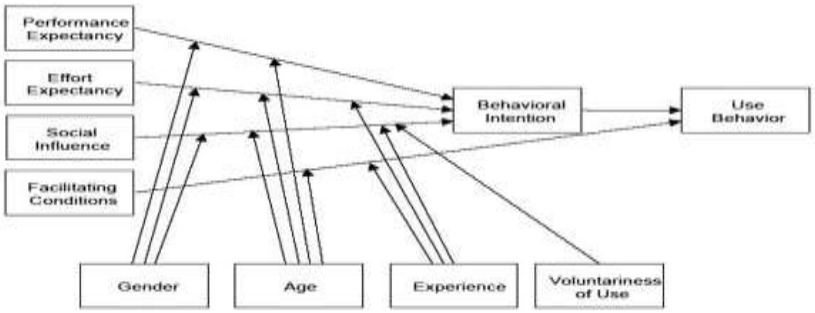

Figure 3.5: Unified theory of Acceptance and use of technology

3.4 Instructional design model

3.4.1Gagne's Nine Events of Instruction model [16] [17][18]

Robert Gagne is considered to be one of the foremost contributors to the systematic approach to instructional design and his theory has provided a great number of valuable ideas for trainers and teachers. Gagne's model of instructional design is based on the information processing model of the mental events that occur when adults are presented with various stimuli and focuses on the learning outcomes and how to arrange specific instructional events to achieve those outcomes. Gagne's theories have been applied to the design of instruction in several domains, such as the military, flying, leadership, engineering and healthcare.

Essential to Gagne's ideas of instruction are what he calls "conditions of learning": internal conditions deal with what the learner knows prior to the instruction, external conditions deal with the stimuli that are presented to the learner, e.g. instructions provided by the teacher.

Figure: 3.7 Gagne's Nine Events of Instruction model

Here are the events:

1. **Gain attention:** Spark learners' interest and curiosity to motivate learning
2. **Inform learners of objectives:** State training objectives or goals to communicate expectations
3. **Stimulate recall:** Include questions or an activity to engage existing knowledge to which learners can relate new content

4. **Present content:** Present the new content learners must learn, preferably with a variety of media
5. **Provide learning guidance:** Elaborate on presented content by telling stories, explaining examples and non-examples, offering analogies, etc.
6. **Elicit performance (practice):** Prompt learners to practice using newly learned skills and knowledge
7. **Provide feedback:** Provide immediate and specific feedback to learners while they practice, to help shape their behavior to improve performance
8. **Assess performance:** Test learners on newly learned skills and knowledge to confirm that they've met the originally stated training objectives or goals
9. **Enhance retention and transfer to the job:** Provide support to ensure learners apply newly learned knowledge and skills on the job (e.g., post-training follow-up plans, job aids, etc.)

3.4.2 ADDIE model(Analysis, Design, Development, Implementation, and Evaluation)[20] [21][22]

The ADDIE model is the generic process traditionally used by instructional designers and training developers. The five phases—Analysis, Design, Development, Implementation, and Evaluation—represent a dynamic, flexible guideline for building effective training and performance support tools. While perhaps the most common design model, there are a number of weaknesses to the ADDIE model which have led to a number of spin-offs or variations.

It is an Instructional Systems Design (ISD) model. Most of the current instructional design models are spin-offs or variations of the ADDIE model; other models include the Dick & Carey and Kemp ISD models. One commonly accepted improvement to this model is the use of rapid prototyping. This is the idea of receiving continual or formative feedback while instructional materials are being created. This model attempts to save time and money by catching problems while they are still easy to fix.

Instructional theories also play an important role in the design of instructional materials. Theories such as behaviorism, constructivism, social learning and cognitivism help shape and define the outcome of instructional materials.

In the ADDIE model, each step has an outcome that feeds into the subsequent step.

Analysis > Design > Development > Implementation > Evaluation

Analysis Phase

In the analysis phase, instructional problem is clarified, the instructional goals and objectives are established and the learning environment and learner's existing knowledge and skills are identified. Below are some of the questions that are addressed during the analysis phase:

* Who is the audience and their characteristics?
* Identify the new behavioral outcome?
* What types of learning constraints exist?
* What are the delivery options?
* What are the online pedagogical considerations?
* What is the timeline for project completion?

Design Phase

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning and media selection. The design phase should be systematic and specific. Systematic means a logical, orderly method of identifying, developing and evaluating a set of planned strategies targeted for attaining the project's goals. Specific means each element of the instructional design plan needs to be executed with attention to details.

These are steps used for the design phase:

* Documentation of the project's instructional, visual and technical design strategy
* Apply instructional strategies according to the intended behavioral outcomes by domain (cognitive, affective, psychomotor).
* Create storyboards
* Design the user interface and user experience
* Prototype creation
* Apply visual design (graphic design)

Development Phase

The development phase is where the developers create and assemble the content assets that were created in the design phase. Programmers work to develop and/or integrate technologies. Testers perform debugging procedures. The project is reviewed and revised according to any feedback given.

Implementation Phase

During the implementation phase, a procedure for training the facilitators and the learners is developed. The facilitators' training should cover the course curriculum, learning outcomes, method of delivery, and testing procedures. Preparation of the learners include training them on new tools (software or hardware), student registration.

This is also the phase where the project manager ensures that the books, hands on equipment, tools, CD-ROMs and software are in place, and that the learning application or Web site is functional.

Evaluation Phase

The evaluation phase consists of two parts: formative and summative. Formative evaluation is present in each stage of the ADDIE process. Summative evaluation consists of tests designed for domain specific criterion-related referenced items and providing opportunities for feedback from the users.

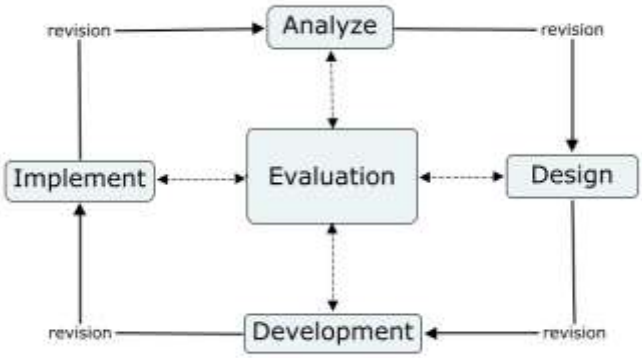

Figure3.8 ADDIE Model

3.4.3 Rapid Prototyping model [23][24]25]

According to Joe Hoffman and Jon Margerum-Leys ,2006), the general rapid prototyping model can be summarized as follows: concept definition

- implementation of a skeletal system
- user evaluation and concept refinement
- implementation of refined requirements
- user evaluation and concept refinement
- implementation of refined requirements
-

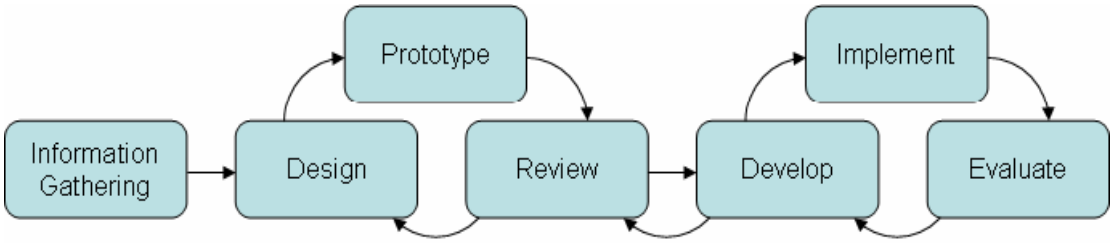

Figure 3.9 - Typical rapid prototyping model

- **Rapid Prototyping Model: Tripp and Bichelmeyer:**

Tripp and Bichelmeyer (1990: 36) define a model that presents " that occur in a rapid prototyping environment, when prototyping is specifically used as a method for instructional design. The overlapping boxes are meant to represent the fact that the various processes do not occur in a linear fashion. In other words, the analysis of needs and content depends in part upon the knowledge that is gained by actually building and using a prototype instructional system."

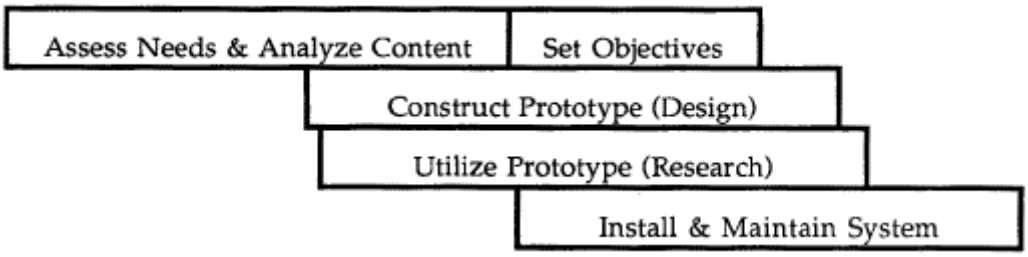

Figure3.10 Tripp and Bichelmeyer rapid prototyping ISD model

- ***eLab Rapid Prototyping Model:*** *Botturi, Cantoni, Lepori, Tardini*

The summarized model of rapid prototyping by Botturi, Cantoni, Lepori, Tardini is shown in the following diagram:

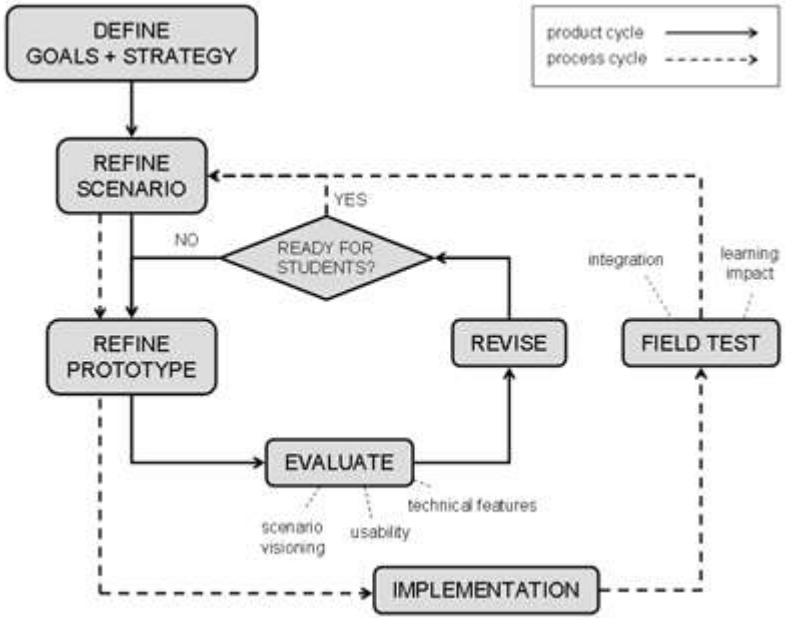

Figure 3.11 The eLab prototyping model (Botturi, Cantoni, Lepori, Tardini 2007)

This design method:

- makes the design and development process open to new emerging ideas
- makes the design open to emerging needs from test and evaluation phases
- let's teachers focus on pedagogical design (teaching) instead of course materials preparation and technology
- Stimulates discussion with external partners.

3.4.4 Community of Inquiry Model (Garrison & Anderson 2003) [19]

The community of inquiry model is an instructional design model for e-learning developed by Randy Garrison, Terry Anderson et al (University of Calgary). Its purpose is to provide a framework for the use of CMC in supporting an educational experience.[18] Interaction in all its forms (between and among learners, learners and educators, learners and information or content) is an essential element in the learning process [(Moore 1993:20; Laurrillard2000:137; Palloff & Pratt 1999).

E-learning has the capacity to support interaction as "the true uniqueness of e-learning lies in its multidimensional forms of communication and interaction (i.e.,simultaneous intimacy and distance; multirepresentational; hyper searchable) that are trulymultiplicative. Learners are able to assume control and directly influence outcomes" (Garrison &Anderson 2003:115).Lately more researchers in the field of e-learning have shifted their focus to online communication inthe e-learning environment - the facilitation of online interaction, effective use of online communicationtools, the adoption of online communication and methods of motivating learners to participate, etcetera [17] (Blignaut & Trollip 2003). Most universities that were early adopters of e-learning have sorted out their technology infrastructure and electronic administrative and library services and are nowaddressing pedagogical issues. While educators could design their learning materials according to an appropriate instructional design model, the learners may not participate in the learning experience asexpected.The community of inquiry model developed by Garrison and Anderson (2003) is an attempt to giveeducators an in-depth understanding of the characteristics of e-learning and direction and guidance tofacilitate critical discourse and higher-order learning through the use of e-learning. According to theauthors, "institutions of higher education have slowly begun to appreciate that the content of aneducational experience alone will not define quality learning but that the context – how teachers design that experience, and the interactions that drive the learning transaction – will ultimately distinguish each institution" (Garrison & Anderson 2003).

A community of inquiry provides the environment in which learners can take responsibility for andcontrol of their learning through interaction and is a requisite for higher-order learning. Given theinformation access and communication facilities of the Internet, an e-learning environment has distinct advantages as a means of providing support to communities of inquiry to promote higher-order learning.

Figure 3.6 : Community of Inquiry Model (Garrison & Anderson 2003:28)

The community of inquiry model has three key elements that must be considered when planning and delivering an e-learning experience. They are cognitive presence, social presence and teaching presence.

- Social Presence
- Cognitive Presence
- Teaching Presence
- Structure/process
- Setting climate
- Supporting discourse
- Educational Experience
- Communication medium

- **Cognitive presence**

The authors see cognitive presence "as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry. In essence,cognitive presence is a condition of higher-order thinking and learning".

- **Social presence**

Social presence is defined as "the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e. their full personality), through the medium of communication being used" .

- **Teaching presence**

Teaching presence is defined as "the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes".
The community of inquiry e-learning model builds on the demand-driven model and the instructional design models and draws attention to the complexities of communication in a virtual learning environment. Even in higher education today, the reality is that the concept of communities of inquiry that encourages learners to approach learning in a critical manner and process information in a deep and meaningful way has not been widely established. While this model may seem idealistic, the issue of interaction in the learning process has to be addressed.

3.6 E-learning Life –cycle model[26] [27]

This model proposes the whole life-cycle of e-learning. One aim is to identify the critical points for evaluation of e-learning.There are two weaknesses with the majority of the existing e-learning evaluation models:
Firstly that is existing model of e-learning do not describe the whole life cycle, they mostly start from the point at which course development against institutional or departmental strategic goals and even some are not include planning and resource allocation.

Also existing models do not cover course review and the consequences of that.
Secondly these models rarely designed to highlight the critical points for effective evaluation. Not deals with necessary analysis feedback and control aspects of the evaluation process.Existing models are not conditioned by inputs as well as not restricted by outputs.

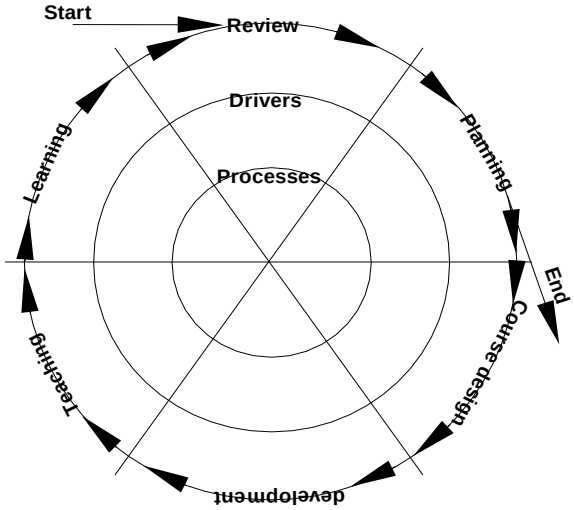

Figure 3.12 e-learning processes as a life-cycle

With basic question in mind the how evaluation can be used to support quality enhancement, and so the model of e-learning has been developed with this function in mind. In order to support evaluation we need a process model, by which we mean a model that focuses on the processes that are involved in the creation and delivery of e-learning, rather than focusing on people, activities or roles.

There is a need for an explicit model of the full e-learning life-cycle, since without this it is not possible to determine the most effective points at which to evaluate, nor what those evaluations should be aiming to achieve. Most evaluations cover only a small part of the life-cycle, and there has been little theoretical justification given for the points selected. Indeed, the vast majority have focused on whether e-learning is as effective (or more or less effective) as traditional learning and in this context these can be considered largely as irrelevant.

We therefore need to develop a model which allows us to identify the critical points for evaluation as a basis for action together with the stakeholders (or their surrogates) that need to be involved and the decision making that will take place.

The model has six phases, though these overlap and in real development processes there will be feedback and complex dependencies as described later. The six phases are divided into three groups:

- Review and Planning:
  - Review
  - Planning
- Curriculum development:
  - Course design
  - Course development
- Delivery:
  - Teaching
  - Student learning

For each of these phases the most important external drivers and controls and the critical processes are shown. The drivers and controls are those forces which place parameters and restrictions on what can be done. They should not be considered immovable, however they are unlikely to be significantly changeable in the short term. Clearly, feedback from all stages of the planning, development, delivery and review should be one of the influences on both the internal and external drivers, but the life-cycle for these is generally much longer than for the development of courses.

3.7 Laurillards conversational model[26]

A learning led model is Laurillard's conversational model (Laurillard 2002). The focus of the model is on the student learning and the characteristics of the design, development and delivery that ensure an effective course. The focus is entirely on the learning and the model itself has little to say about the business models which are needed to ensure the effective delivery of the course around such issues as marketing, recruitment or student support (other than pedagogic support).

The model is developed from the work of Vygotsky (Vygotsky 1962) who proposed that social interaction is fundamental to learning, stating "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals." (Vygotsky 1978). Laurillard suggests that learning is based on the teacher helping the student to conceptualise the teacher's model of the subject through discussion and negotiation. Laurillard uses this model to propose a design methodology encompassing issues such as designing teaching materials, setting the learning context and even designing an effective organisational infrastructure but these remain high level conceptualisations. In essence, Laurillard's model is one of the teaching and learning process.

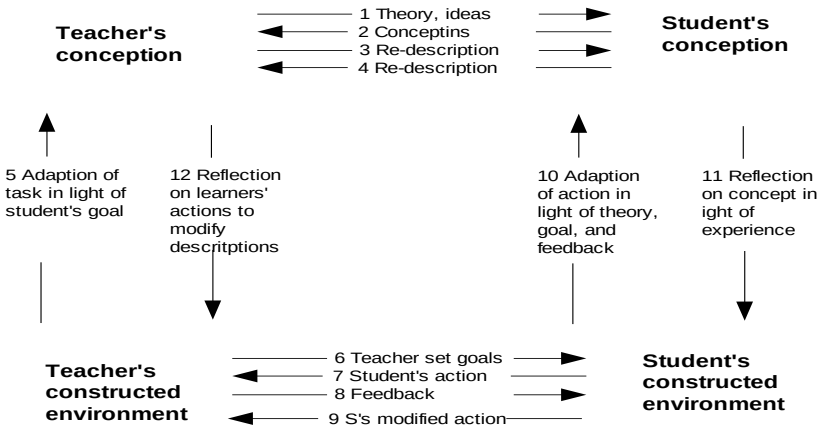

Figure 3.13: Laurillard's conversational model of e-learning

IV. CONCLUSION

This paper summarizes the generalized models of e-learning. According to the need of the research study learning essentials, the models can be implemented and integrated. These paper gives brief idea about implementation of e-learning models for e-learning which can be according to theories of e-learning one can study the models for specific research work e.g. models for business e-learning, strategic-learning, pedagogical models, web learning models and so on[9][10]. The comparative study of these models also can be carried out for detailed analysis and to investigate values of these models for specified e-learning.

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