Development of ADDIE and ASSURE Model of Instructional Design through Interactive Technology

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Abstract- An Instructional designer is somewhat like an Engineer. It is the process by which educational products are designed, developed and delivered. These products include online courses, manuals, tutorials, etc. So, instructional design is the analysis of learning needs and then systematic development of instruction. Instructional technology is often used by the instructional designers. The term instructional design refers to the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources and evaluation. Instructional design is the design, development, and delivery of learning experiences. It constructs those experiences in such a way that learners acquire either knowledge or skills. Instructional designers follow various academic theories and models related to how people learn and the cognitive processes behind the learning experience. These models ensure the instruction is as effective as possible for imparting knowledge or teaching skills to learners. The emergence of instructional design as an academic subject and profession came about through a combination of other disciplines including behavioural sciences, military training practices, and education. Using research from

B.F. Skinner's studies in behavioural science, military instructors learned to break tasks down into individual learning goals. Thus this paper is mainly focussed on the development of Instructional design models such asADDIE and ASSURE through interactive media.

Key Words- Instructional Design, Interactive, Technology.

Introduction-When it comes to designing a learning experience, instructional designers must take three main components into account to ensure the learning is effective: learning objectives, learning activities, and assessments. This is known as the "Magic Triangle" of learning. Instructional design, also known as instructional systems design or instructional systems development (ISD), is the practice of creating learning experiences to support learning. It is a systems approach to analyzing, designing, developing, implementing, and evaluating any instructional experience based on the belief that training is most effective when it gives learners a clear statement of what they must be able to do after training and how their performance will be evaluated. An instructional designer applies learning theory and a systemic approach to design and develop

content, learning activities, training, and other solutions to support the acquisition of new knowledge or real world skills. Instructional designers develop all instructional materials of a training program, including presentation materials, participant guides, handouts, and job aids or other resources. They are also responsible for evaluating training, including assessing what was learned and whether the learning solution led to measurable behaviour change.

ADDIE Model-

ADDIE is an instructional systems design framework that many instructional designers and training developers use to develop courses. The five phases of ADDIE—Analysis, Design, Development, Implementation, and Evaluation—together represent a dynamic, flexible guideline for building effective training experiences and performance support tools. The tools to build, host, and deliver learning experiences may change, but ADDIE remains tried and true. The model was originally created back in the 1970s for the armed forces, but 40 years later it's still widely used in instructional design across all types of training and education.

The Five Phases of ADDIE

- **Analysis**

  During the Analysis phase, course designers must examine the audience, the learning goals, and the potential constraints involved among other elements. It should give designers a full picture of the entire scope of the training development project.

- **Design**

  This phase is the bread and butter for instructional designers. It's where they will choose the layout, structure, and content of the course according to the learning parameters set out in the analysis phase.

- **Development**

  Like the development phase of any product, this stage includes quality assurance, prototype testing and re-designing for elements that need more work.

- **Implementation**

  Now that the course is ready, it is important to make sure all other aspects of the learning environment are ready, too. This stage can often include activities such as "train the trainer" for instructor-led learning, or in the case of e-learning, ensuring all the required learners have access and the requisite tools to complete the online course.

- **Evaluation**

  Although it was originally listed as a separate, final phase of the model, today it's widely practiced as a continuous stage alongside the other four phases. It refers not only to the evaluation of learners but more to evaluation of the effectiveness of the course design as a result of the learner's subsequent performance.

ASSURE Model –

The ASSURE model is an ISD (Instructional Systems Design) process that was modified to be used by teachers in the regular classroom. The ISD process is one in which teachers and trainers can use to design and develop the most appropriate learning environment for their students. You can use this process in writing your lesson plans and in improving teaching and learning.

The ASSURE model incorporates Robert Gagne's events of instruction to assure effective use of media ininstruction.

A — Analyze learners

S — State standards & objectives

S — Select strategies, technology, media & materials

U — Utilize technology, media & materials

R — Require learner participation

E — Evaluate & revise

<u>Development of Instructional Model using Interactive Technology-</u>

ANALYSE

Develop Learning profiles, Identify Learning spaces and devices, Research LearningResources, Determine delivery and assessment strategies.

DESIGN

Storyboard the design, Plan and test using Prototypes, Identify Network capacity, Designonline learning spaces, Explore and refine technology options, Consider using Repositories.

DEVELOP

Decide to insource / outsource, Conduct Testing, Ensure Security, Backup and AccessRequirement Met, Confirm Licencing, Copyright and Accessibility.

IMPLEMENT

Provide tools for learners, Conduct delivery and assessment, Provide Entry point forLearners, Prepare Teachers for E- Learning.

EVALUATE

Collect , Interpret and Understand Data, Share Results.

ASPECTS	ADDIE MODEL	ASSURE MODEL
PIONEER	Rosset – 1987	Heinich, Molanda, Rusell- 1989
First Created For	Military Purposes	Educational Purposes
History	Instructional systems developed (ISD) designed for military interservice training that will adequately train individual to do a particular job and which can also be applied to any interservice curriculum development activity.	It is based on Gagne's Events of instruction. This model is helpful for designing courses using different kind of media. It emphasizes on the various use of Media to deliver content knowledge.
Defination	A model that acts as guideline for building effective training and performance support tools on five stages.	A model that prepares educators/ teachers to plan, devise and carry out lesson plan that needs media.
Focus	A framework that lists generic processthat used by instructional designers and training developers.	Specific focus on the teaching planningin classroom and can be used as a guide to plan the use of media in teaching.
Stages	A- Analysis D-Design D- Develop I- Implement E- Evaluate	A-Analyse learner S-State learning objectives S-Select media, Methods, MaterialsU-Utilise media and materials R-Require learnerE- Evaluate
Types of Evaluation	Formative and Summative Evaluation	Formative Evaluation

Interactive Technology to Instructional Design-

Jalaluddin in 1981 marked six major phases of Interactive technology related to Instructional design models-

☐ **Formation of Objectives-** It includes the specifications of instructional objectives in terms of theexpected outcomes.

☐ **Pre-Assessment of Student's Entering Behaviour-** It includes the assessment of student's initialperformance with the help of certain criterion.

☐ **Designing and Development if the System-** In this process, an instructional system is developed, with the help of planned and designed inputs.

☐ **Operation or Implementation Phase-** Under this process, the actual operation or implementation of the instructional system takes place. All the elements of the instructional systems are integrated, for achieving the desired instructional objectives.

☐ **Evaluation of Outcomes-** The student's achievement is evaluated according to the stipulated instructional objectives, on the basis of the post test scores.

☐ **Improvement of the System-** This process deals with the improvement of the system, on the basis of feedback from evaluation results. It aims to improve effectiveness as per the specified objectives.

ADDIE		Heinich, Molenda, Russell and Smaldino		Gerlach & Ely		
Analysis		Analyzing		Specify Objective		Analysis of feedback
Design		Stating objectives		Specify content		
Development		Selecting media and materials		Assessment of Entering behaviors		
Implementation		Utilizing media and materials Requiring learner participation		determine strategy organize groups allocate time allocate space select resource.		
Evaluation		Evaluating and revising		Evaluation of performance		

The ADDIE and ASSURE Models are heavily associated with good quality design, with clear learning objectives, carefully structured content, controlled workloads for faculty and students, integrated media, relevant student activities, and assessment strongly tied to desired learning outcomes. Although these good design principles can be applied with or without the ADDIE model, ADDIE is a model that allows these design principles to be identified and implemented on a systematic and thorough basis. It is also a very useful management tool, allowing for the design and development of large numbers of courses to a standard high quality. Open University's success in developing high quality learning materials influenced many more institutions that were offering distance education on a much smaller scale to adopt the ADDIE model, if in a

more modest way, typically with a single instructor working with an instructional designer. As distance education courses became increasingly developed as online courses,

the ADDIE model continued, and is now being used by instructional designers in many institutions for the re-design of large lecture classes, hybrid learning, and for fully online courses. ADDIE and ASSURE is a design model used by many professional instructional designers for technology-based teaching. ADDIE has been almost a standard for professionally developed, high quality distance education programs, whether print-based or online. It is also heavily used incorporate e-learning and training.

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