Theory and practice of Design, Development, Utilization, Management and Evaluation of Subject Matter

For Students of M.Ed

By

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What is IT?

- discipline
- field
- profession
- art
- science
1986 Definition

Science of creating detailed specifications for the development, evaluation, and maintenance of situations which facilitate the learning of both large and small units of subject matter

AECT, 1986
1994 Definition

- theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning

Seels & Richey, 1994
Instructional Technology 1994 definition

According to the 1994 definition, Instructional Technology is:

- The theory and practice;
- Of design, development, utilization, management and evaluation;
- Of processes and resources; and
- for learning.
1994 Definition

defined IT as

Instructional Technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning.

- systems
- learning
- 5 domains/field of study
- practice
- theory/research
- tools
- information
- resources
- processes

- does not focus on
- goal is
- has
- is
- involves refinement of
- focuses on

- do not include
- utilization
- management
- evaluation
- development
- design
- analysis
Instructional Technology
Theory & Practice

Design
- Message Design
- Instructional Strategies
- Learner Characteristics

Evaluation
- Criterion-Referenced Measurement
- Formative Evaluation
- Summative Evaluation

Development
- Print Technologies
- Audiovisual Technologies
- Computer-Based Technologies
- Integrated Technologies

Management
- Project Management
- Resource Management
- Delivery Systems Management
- Information Management

Utilization
- Media Diffusion
- Dissemination
- Implementation
- Institutionalization
Theory and Practice

- A profession must have a knowledge base that supports practice.

- Each domain of Instructional Technology includes a body of knowledge based on both research and experience.

- The relationship between theory and practice is nurtured by a mature field.
Theory and Practice

- Theory consists of the concepts, constructs, principles and propositions that contribute to the body of knowledge.

- Practice is the application of that knowledge to solve problems.

- Practice can also contribute to the knowledge base through information gained from experience.
Theory and Practice

- Both theory and practice in Instructional Technology make extensive use of models.

- Procedural models, which describe how to perform a task, help to connect theory and practice.

- Theory can also generate models that visualize relationships; these models are called conceptual models.
Purposes of Theories

- provide patterns for interpretation
- link studies together
- supply frameworks where concepts and variables develop significance
- permit interpretation of larger meanings of findings
- provide structure for interpretation
- ultimate role: Prediction
Design

- Involves planning for all aspects.
- Employs a systems design approach
- Analyzes the learner and the learning situation
- Selects or designs the proper methods of instruction
- Selects or designs the learning materials
- Decides on the proper implementation of the instruction
- And plans for the evaluation of the effectiveness of the instruction.

The process is often described using the acronym ADDIE, signifying Analysis, Design, Development, Implementation, and Evaluation (Anglada, n.d.).
Design

- Not all problems can be solved by instruction
- If instruction is the solution, the designer then must analyze the characteristics of the learner and the learning environment to attain the information needed to tailor the design of instruction.
- Analyze the tasks involved in achieving the ends of instruction.
- Writes the objectives to be attained by the training.
Development

“Development is the process of translating the design specifications into physical form” (Seels & Richey, 1994, p. 35).

Develops the products and methods he has recommended into tangible form so that it is a viable real-world, usable learning program.

To do this, the Instructional Designer employs four areas of technology:

1. Print
2. Audiovisual
3. Computer-based, and
4. Integrated.
Print technologies

- Print technology, including graphic and photographic representations of instructional material, produces materials that can be placed in the hands of the learners and instructors.

- Print materials are often companions to other technologies, and are often required to meet the needs of learners based on the previous learner analysis, even when other technologies carry the bulk of instruction.
Audiovisual technologies

- Employ sound and visual images to convey learning messages.
- The most familiar: videotape, film, and sound recordings.
- The Instructional Designer: must have a knowledge of production requirements, script preparation, and learning theory as applied to this area in order to design and guide the production of effective media.
- Audiovisual technologies are primarily linear in nature (AECT, 2001), thus lacking interactivity, but have the advantage of being familiar to learners, increasing the facility with which learners can access information.
Computer-based technologies

- Those technologies that use electronically stored data in digital form.
- Are accessed by individuals through computer work stations or by groups through projected electronic media.
- Such media can include instruction on CD-ROMs, teleconferencing, and distance education.
Integrated Technologies

- Those technologies that combine several forms of media under the control of a computer. Examples include learning over the Internet, and hypermedia CD-ROMs.

- Allows more flexible levels of user control, greater interactivity, and integration of development technologies.

- Using integrated technologies, it is possible to present a learner with information that is traditionally provided in print, along with the associated graphic material, which can be in animated form.
Utilization

- The Domain of Utilization covers the use of human and material resources to gain acceptance for, implement, and institutionalize a program of instruction as designed and developed under the previously explained domains (AECT, 2001).

- The Instructional Designer must:
  - take into account the environment in which the instruction will be used
  - the learners must see the innovation as useful and worthwhile for them

- Anything that is perceived to be new to the learner is an innovation, thus nearly all new instruction is innovative (Rogers, 1995).

- Positive opinion
Utilization

- The diffusion plan should:
  - calm users' fears
  - real or simulated experience

- Implementation is the application of the instructional design and development into the actual learning setting (AECT, 2001). To do this successfully, the Instructional Designer must determine who will deliver the instruction, where, and under what conditions to appropriately perform the training. Once the careful work of design and development is finished, one should not allow it to fail because of improper implementation. Instructors and learners will need support in adapting to the new knowledge and skills they receive during and after instruction. The Instructional Designer must plan to ensure this support is present. One does not want to plan instruction for a series of three hour workshops, only to be told it was a failure after time constraints forced an organization to try to cram it into one half-day workshop. The instructional designer is like the modern father: he does not wait in the waiting room, but is present and involved in the delivery of his child.
Utilization

Beyond implementation is institutionalization. This is the permanent adoption and continued use of the innovation (AECT, 2001). When a program is institutionalized, it becomes a part of the culture of the organization. Planning for continued follow-up, support, and adaptation of the instruction are also the province of the Instructional Designer.

Also included under the Domain of Utilization are the policies and regulations that will affect the implementation of instructional solutions. Whatever development technologies are used, the Instructional Designer must be aware of United States and international copyright laws that will pertain to his implementation. He must educate himself to the requirements of the institutions and organizations into which he will implement his plan, such as being sure all Web-based material developed for public institutions be ADA compliant so as not to unfairly block access for some users. Community and organizational standards for content must be considered as applicable to the learners one is trying to reach.
ADDIE Model

The ADDIE model is used by instructional designers and training developers. It is composed of five phases:
- Analysis,
- Design,
- Development,
- Implementation, and
- Evaluation

Which represent a dynamic, flexible guideline for building effective training and performance support tools. This model attempts to save time and money by catching problems while they are still easy to fix.
ADDIE Model

**Analysis**
A systematic exploration of the way things are and the way things should be. The difference is the performance gap.

**Design**
If the analysis identifies a performance gap, the Design phase will outline the performance objectives.

**Evaluate**
Measurement of how well the performance solution achieved the objectives.

**Implement**
This stage includes delivery of the performance solution.

**Develop**
Using the information gathered in the Analysis and Design phase, the performance solution is created.
ADDIE Model:
A = Analysis

- In analysis stage of ID process, want to find out:
  - Who are the learners or audience
    - Audience analysis
  - What is the goal or intended outcome
    - Goal analysis
ADDIE Model:
D = Design

- Content of the course
  - Subject matter analysis

- Steps of instruction
  - Lesson planning-writing objectives

- Type of media or presentation mode
  Media selection
ADDIE Model:
D = Development

- Development of instruction
  - Generate lesson plans (different from lesson planning) and lesson materials.
  - Complete all media & materials for instruction, and supporting documents.
  - End result is a course or workshop ready for delivery.
ADDIE Model:
I = Implementation

- The delivery of the instruction.
  - Purpose is effective & efficient delivery of instruction.
  - Promote students’ understanding of material & objectives, and ensure transfer of knowledge.
ADDIE Model:
E = Evaluation

- Two related evaluations going on simultaneously in most ID situations.
  - Formative Evaluation
  - Summative Evaluation