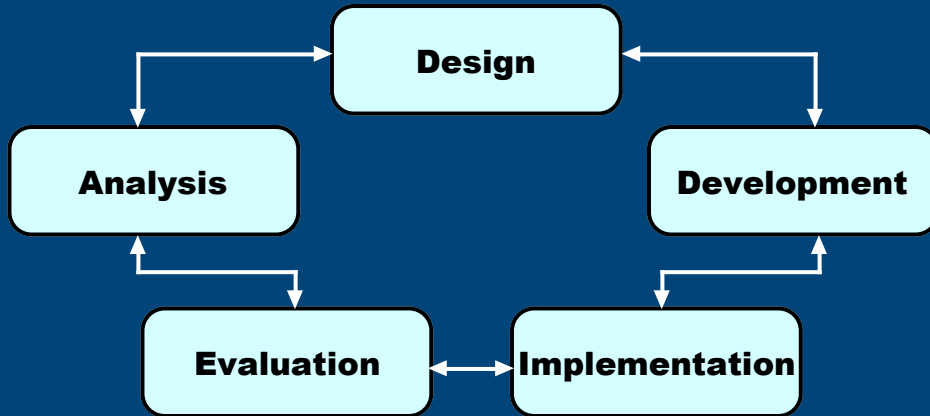


Assumptions of Instructional Systems Design

The ISD Model



ISD is Empirical Science

- ▶ In its classical sense, ISD is a systematic method for designing instruction
- ▶ It is especially important in instructional technology
- ▶ There are several assumptions that guide the ISD model.
- ▶ All quotes from Merrill, et al (1996). Reclaiming Instructional Design. Educational Technology. 36(5). pp5-7.

Science

- ▶ “There is a scientific discipline of instruction and a technology of instructional design founded on this science.”
- ▶ Instruction is systematic

Assumptions

- ▶ “Like all science, the science of instruction is based on specific assumptions about the real world.”
- ▶ What are these?

Technology

- ▶ **“The technology of instructional design is founded on scientific principles verified by empirical data”**
- ▶ **All that can be taught can be measured in some way.**

Verification

- ▶ “Like other sciences, instruction is verified by discovery, and instructional design is extended by invention.”
- ▶ Man-made tools developed through scientific work and improved through research.

Discovery

- ▶ “Instructional science is concerned with the discovery of the natural principles involved in instructional strategies; instructional design is the use of these scientific principles to invent instructional design procedures and tools.
- ▶ People who do not adhere to these principles have left the discipline.

Instruction and Learning

- ▶ **Acquisition of specific knowledge and skill by students**
- ▶ **Uses verified learning strategies to make this acquisition more efficient, effective, and appealing**
- ▶ **Only concerned with providing proper learning experiences and environments**

Students and Learners

- ▶ **Students submit themselves to instruction**
- ▶ **Learners derive meaning and change their behavior based on experiences**
- ▶ **Learners and learning mechanisms have remained constant for at least a century.**
- ▶ **“The principles of biology do not change with the changes in society; neither do the principles of learning and instruction”.**

Individual Learning

- ▶ “Groups don’t learn, individuals learn”
- ▶ While learners may be a part of a group and learn from one another, the change in cognitive structure and the acquisition of knowledge and skill is an individual event.
- ▶ Students cannot learn without individual practice.

Knowledge and Skill

- ▶ **There is a body of knowledge and skill that has been developed and archived by generations of scholars, scientists, technologists, artists, and others. The purpose of instruction is to enable students (novices) to acquire this knowledge and skill.**
- ▶ **Instructional design facilitates the student's acquisition of this knowledge and skill.**

Instructional Principles

- ▶ **There are known instructional strategies; if the instruction does not include strategies required for the desired learning, the desired outcome will not occur.**
- ▶ **These instructional strategies (conditions of learning) can be verified by empirical test.**

Instructional Principles

- ▶ **Appropriate instructional strategies are not arrived at by collaborative agreement among instructional designers or learners.**
- ▶ **They are natural principles which do exist, and which nature will reveal as a result of careful scientific inquiry.**

Dissenting Views

- ▶ **Jonassen, D. H. (1992). Objectivism Versus Constructivism: Do We Need a New Philosophical Paradigm? Educational Technology Research & Development, 39(3), 5 -14.**
- ▶ **Cites influences of the Cognitive Revolution on ISD**

Reality

- ▶ External to knower
- ▶ Structure determined by entities, properties, and relations
- ▶ Structure can be modeled
- ▶ Determined by knower
- ▶ Project of mind
Symbolic procedures
construct reality
- ▶ Structure relies on experiences/interpretations

Mind

- ▶ Processor of symbols
- ▶ Builder of symbols
- ▶ Mirror of nature
- ▶ Perceiver/interpreter of nature
- ▶ Abstract machine for manipulating symbols
- ▶ Conceptual system for constructing reality

Thought

- ▶ **Disembodied:**
independent of
human experience
- ▶ **Governed by**
external reality
- ▶ **Reflects external**
reality
- ▶ **Embodied:** grows
out of bodily
experience
- ▶ **Grounded in**
perception/
construction
- ▶ **Grows out of**
physical and social
experience

Symbols

- ▶ Represent Reality
- ▶ Tools for constructing reality
- ▶ Internal representations of external reality (“building blocks”)
- ▶ Representations of internal reality

Conclusion

- ▶ **ISD is currently contested ground**
- ▶ **Objectivist thinking still dominates**
- ▶ **Constructivist thinking challenges it**
- ▶ **Your convictions greatly effect your instructional choices in distance education**