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E-Learning in the Human and Social
Sciences

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E-Learning: Instructional Design Comes First

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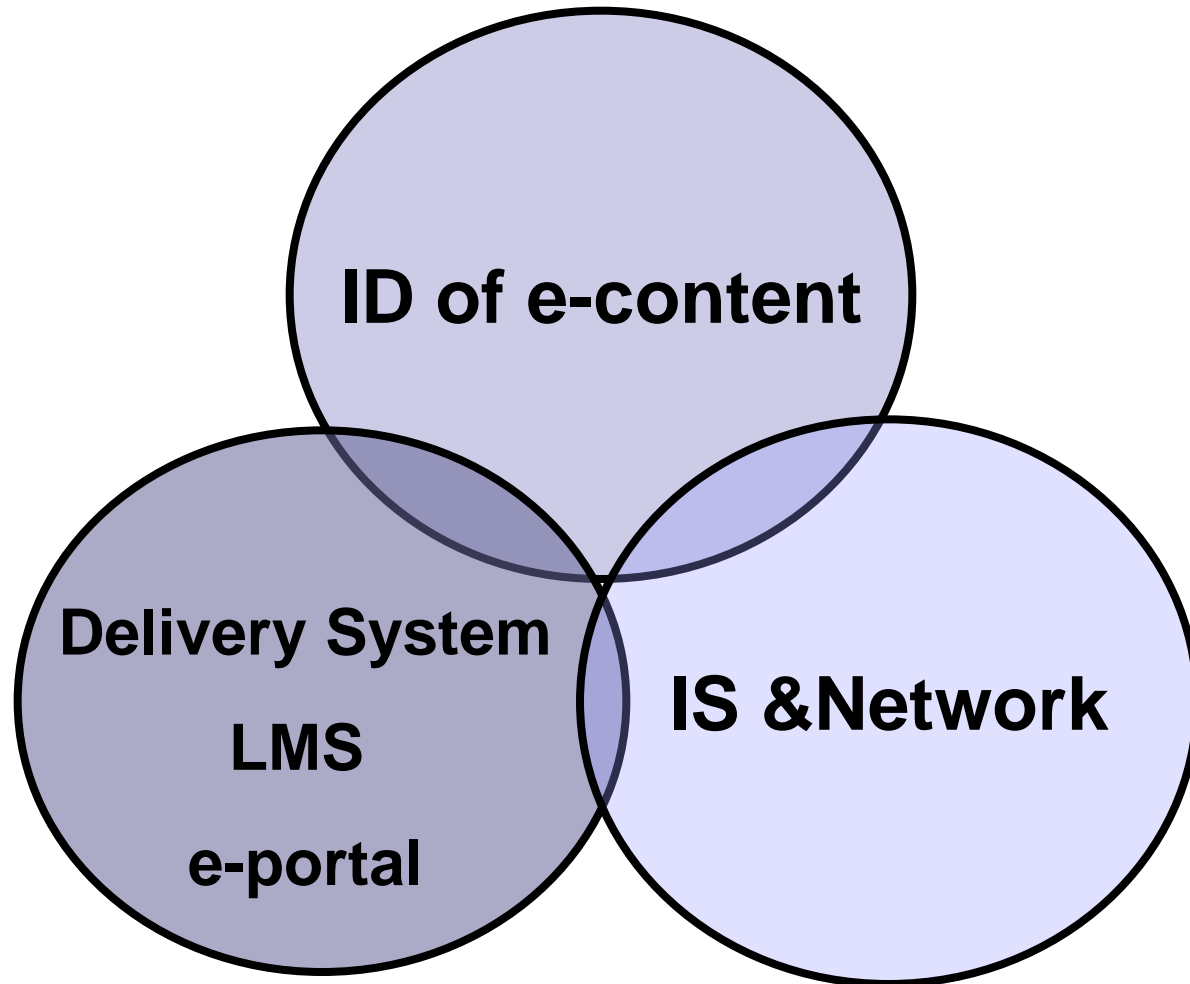
Presentation Outlines


1. What is e-learning?
2. Why use e-learning?
3. What is Instructional Design (ID)?
4. Why use ID?
5. Major Approaches to ID?
6. Incorporating ID Principles into e-learning

What is e-learning?

- Many definitions exist
- Covers a wide applications: Web-B/L , CBL , VC , DC , etc.
- Content delivery via : Internet, Intranet, ITV , Satellite , CD-ROM , etc.
- Learning mediated by an electronic medium(Driscoll,2002,p.330)
- In practice, the Internet is the medium of choice(Tan&Hung,2002,p.48)

E-Learning: The Marriage of Technology And Education





Why use e-learning?

1. Any time, any where learning (24/7)
2. Hypermedia delivery (non-linear)
3. Self-directed learning
4. Communication and collaboration tools



What is ID?

Behavioral ID:

1. The systematic development of instructional specifications using learning and instructional theories, and
2. The analyses of learning needs and goals and the development of a delivery system that meets those needs ,and
3. The development of instructional materials and activities ,and tryout and evaluation of all instructional and learner activities



What is ID?


Constructivist perspective:

The creation of educational environment that facilitates the construction of knowledge(Alessi&Trollip,2001,p.32)



Why use ID?

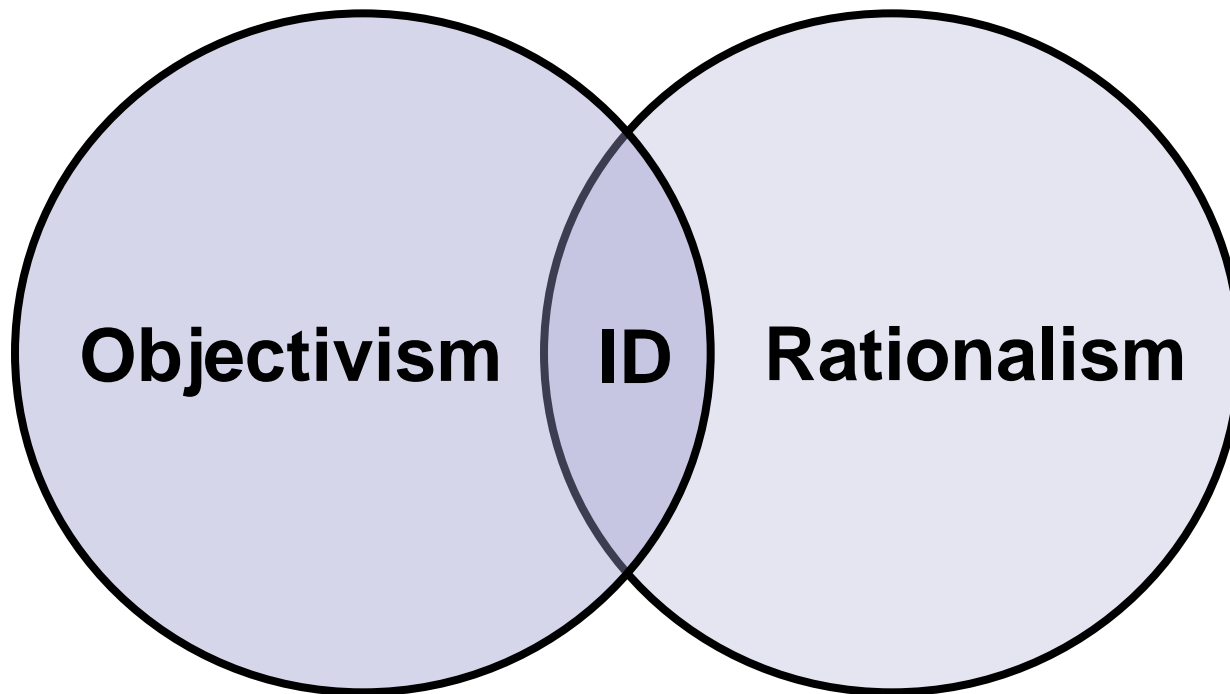
1. A learner advocacy (learner centered)
2. Effective, efficient, and appealing instruction
3. Team work coordination
4. Diffusion and adoption
5. Congruence among objectives, activities, and assessment
6. Alternative delivery
7. Pedagogy driven to use technology
8. A need driven
9. Both theoretical and empirical (eclectic)



ID and e-learning: Which Approach?

- Two Competing Philosophies
- Three Major Learning Theories
- Instructional Theories

ID Philosophical foundation



Philosophical Foundations

A. Objectivism

- Reality exists objectively and independently of the individual
- Reductionalism: reducing complex entities to their simple components
- There exists common reality
- Knowledge is acquired through experience.



Philosophical Foundations

B.Rationalism (Constructivism)

1.Individual/cognitive constructivism:

- Knowledge is individually constructed
- Learning is constructed from experience
- Knowledge results from a personal interpretation of experience
- Learning is an active process



2. Social constructivism

- Learning is collaborative (co-constructed) through social and cultural context with meaning negotiated from multiple perspectives




3.Contextiualism:

- Learning should occur or be situated in realistic settings
- Testing should be integrated into the task, not a separate activity

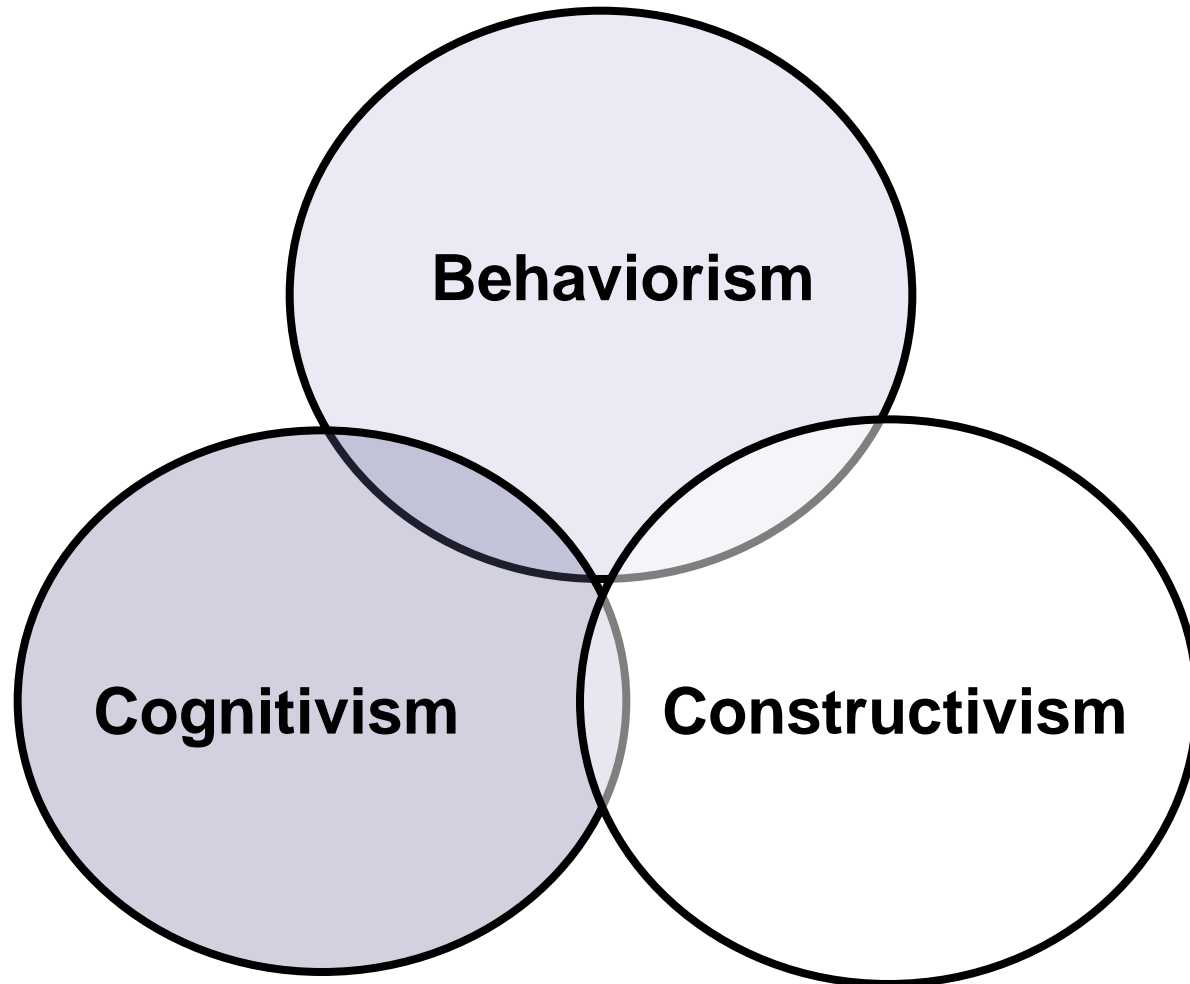
ID: Philosophical Framework

	Objectivism	Rationalism
Learning Theory	Behaviorism	Cognitivism
Learning Goals	Sharply focused	General
Learning Task	Academic	Authentic
Assessment	Criterion	Performance based
Curriculum	Discrete	Integrated



	Objectivism	Rationalism
Motivation	Extrinsic	Intrinsic
Context	Supported	Unsupported
Content	Well-structured	ill-structured
Autonomy	Low	High
Role of teacher	Authoritative	Facilitator
Teaching method	Direct instruction (Transmission)	In-direct instruction (Transformative)

ID : Theoretical Foundation





Behaviorism

- Emphasis on observable behavior
- Reinforcement principles
- Corrective and immediate feedback
- Spaced practice: small tasks or steps

Cognivitism

- Emphasis on unobservable constructs,
- Attention → Perception → Encoding
Memorizing → Comprehending
- Attention ,Encoding, and Retrieval are key components of memory
- Emphasizes Active learning, Motivation, Locus of Control, Mental Models, Metacognition, Transfer of learning, and Individual Differences



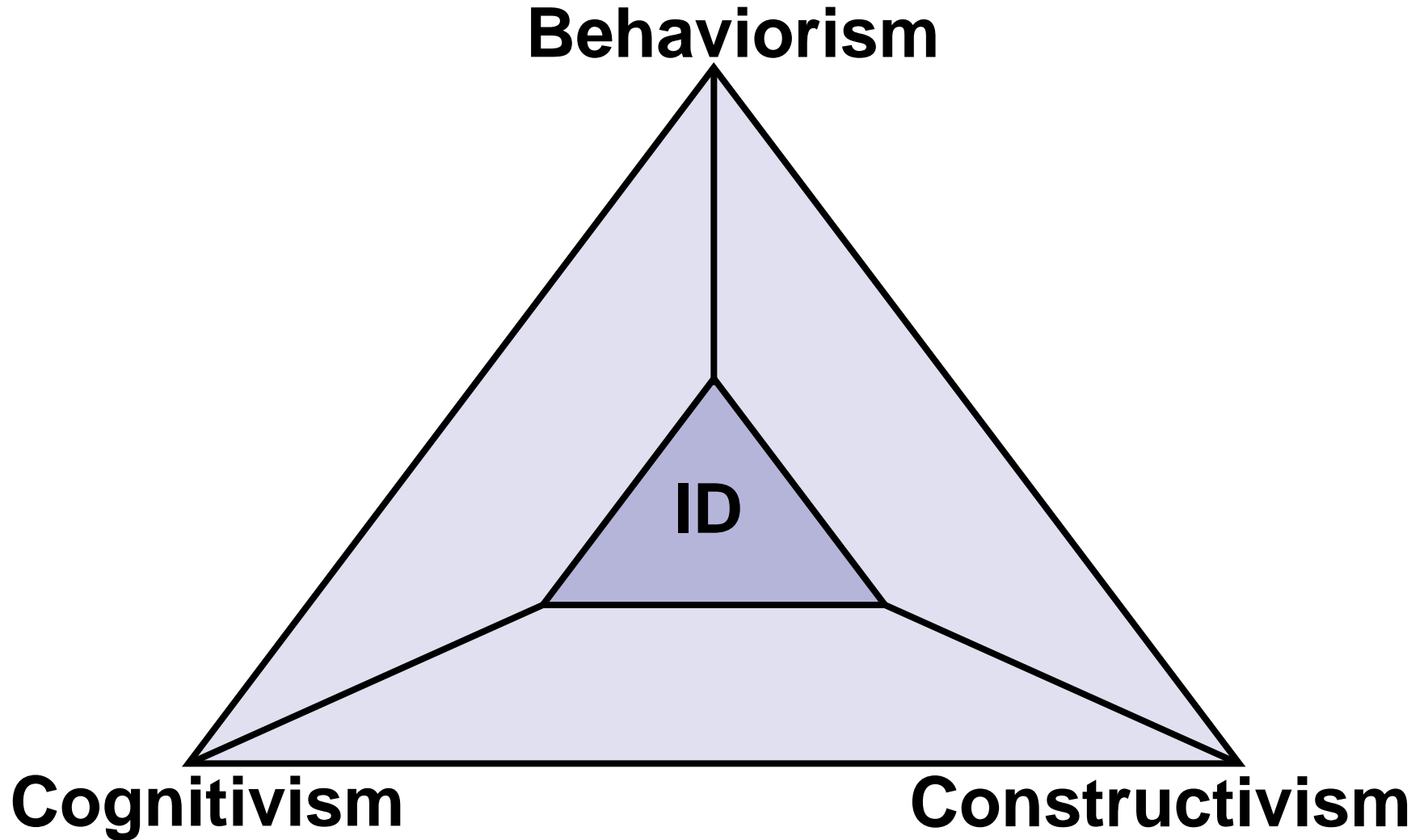
Constructivism

- Knowledge construction
- Collaborative learning
- Self autonomy
- Active learning
- Authentic learning and assessment
- Personal relevance
- Learner reflection
- Discovery or guided discovery
- Multiple perspectives

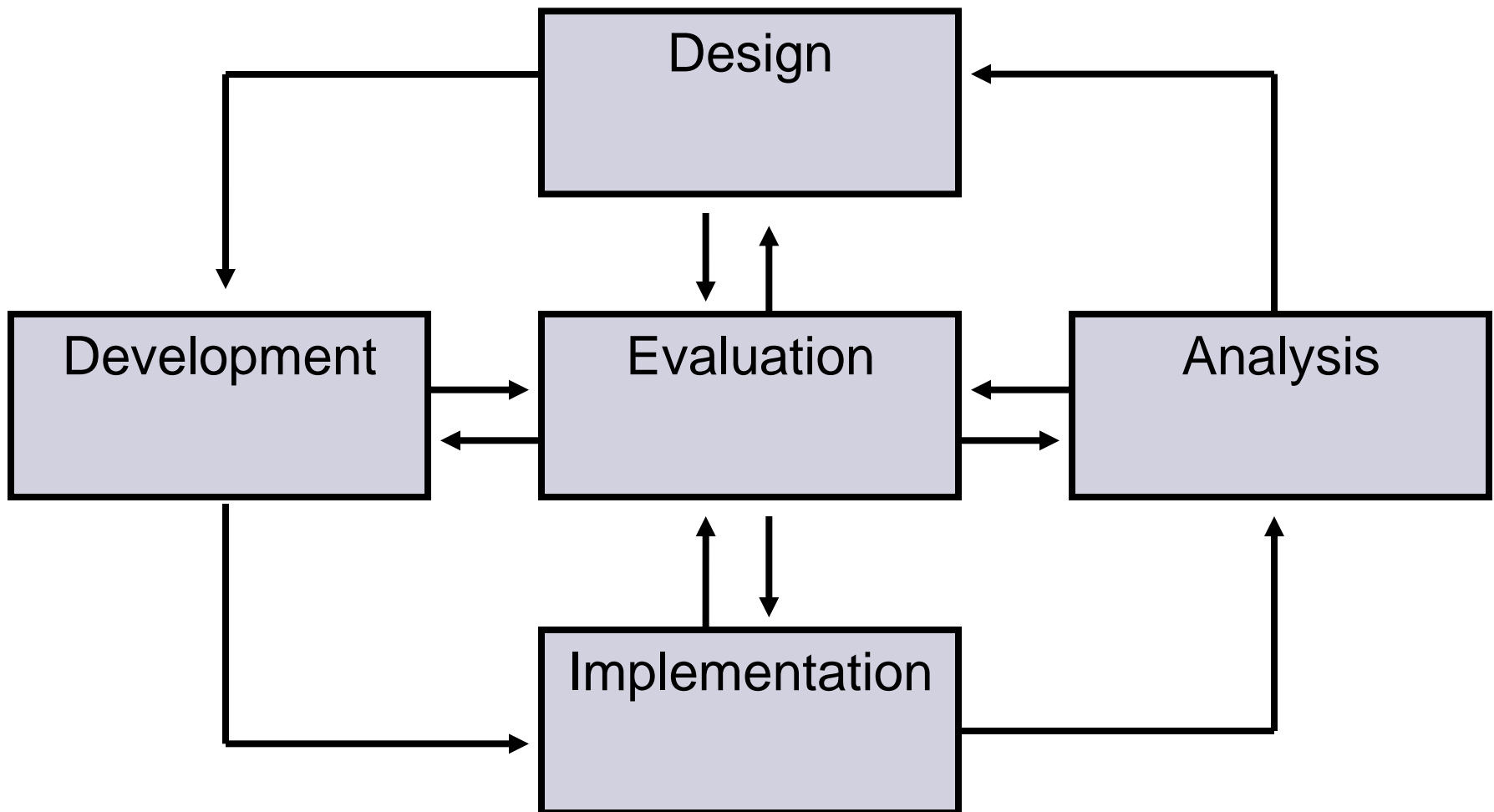
ID and e-learning: Which Orientation?

- No single theoretical base provides complete prescriptive principles for the entire design process.
- Reasoned and validated eclecticism has been a key strength of ID (Smith&Ragan, 1999,p.vii)
- Majority of instructional designers prefer to merge various principles of beh.,cog.,and const. paradigms into one integrated approach (Alessi & Trollip,2001,p.17).

ID: an eclectic approach



Behaviorist ID: The ADDIE Model





The ADDIE Model

Analysis: needs, audience, goals

Design: blueprint of instructional specifications

Development: production, tryout, formative evaluation (Alfa / Beta tests), final product

Implementation: technical & instructional, support, CM, evaluative data

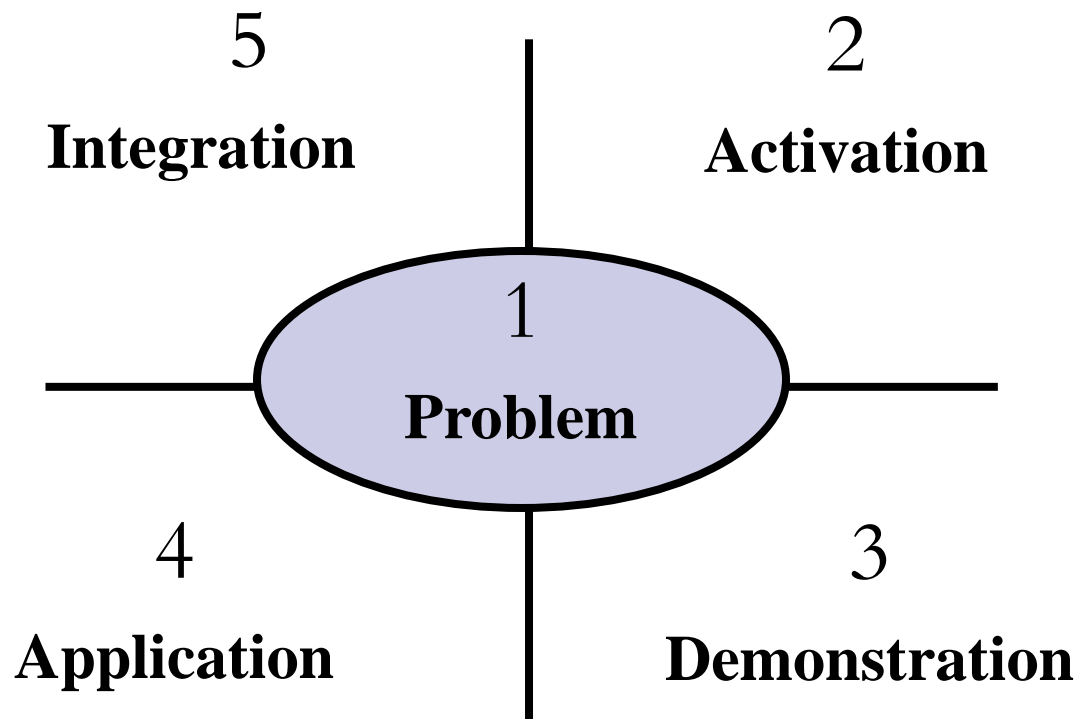
Evaluation: summative, revision, recycle

Behaviorist/ Cognitivist ID:

The Nine Events of Instruction(Gagne,1985)

- 1.Gaining Attention (Reception)
- 2.Informing learner of the objectives (Expectancy, activating motivation)
- 3.Stimulating recall of prior learning (Retrieval)
- 4.Presenting the stimulus (Selective perception)
- 5.Prviding learning guidance (Semantic Encoding)
- 6.Eliciting performance (Responding)
- 7.Providing feedback (Reinforcement)
- 8.Assessing performance (Retrieval)
- 9.Enhancing retention and transfer

Cognitivist/constructivist ID: The Five Principles of Instruction





ID Strategies

Use Behavioral ID strategies for:

- Lower order thinking skills
- Stable, well defined content
- Mastery of content & discrete skills
- Promoting automaticity of prerequisite skills
- Remedy of weaknesses
- High motivated learners



ID Strategies

Use Cognitive ID Strategies for:

- Problem solving with defined facts & rules
- Tasks requiring an increased level of processing



ID Strategies

Use Constructivist ID Strategies for:

- ill-defined & complex content
- Tasks requiring high level of processing
- Learners with well developed metacognitive skills
- High and(low) motivated learners

Incorporating ID Principles into e-learning:

1. Motivate the learner: ARCS (Keller, J.M. 1983)

1.1. Attention:

- Questions & human interest examples
- Ample learner interaction
- Relevant graphic , animation, color & sound
- Short text elements
- Novelty to reduce predictability
- Visual & auditory effects for sensory curiosity
- Conflicting information for cognitive curiosity
- Consistent placement of screen items

Incorporating ID Principles into e-learning:

1. Motivate the learner: ARCS

1.2. Relevance:

- Use content & examples of interest or importance
- Use authentic experiences
- Present concepts & applications in meaningful context
- Match instruction with learning styles

Incorporating ID Principles into e-learning:

1. Motivate the learner: ARCS

1.3. Confidence: provide:

- Clear expectations
- Objectives & summary
- Note taking access
- Online support
- Positive expectation of success



Incorporating ID Principles into e-learning:

1. Motivate the learner: ARCS

1.4. Satisfaction: Provide:

- Learners with more navigation control
- Guidance, feedback, and self-check
- Assessment that matches objective and self-check to increase students, satisfaction of completion and intrinsic rewards



2. Require active involvement:

- Determine the amount of interpersonal exchange to meet e-course objectives
- Provide non-linear navigation
- Clearly communicate rules of interaction
- Ask students to compare, classify, induce, deduce, analyze errors,
- Involve students in discussion & demonstration
- Use case studies, portfolio & research reports



3.Support balanced learner control:

- Encourage learners to assume more responsibility for their learning
- Use project and problem based instruction



4. Encourage collaborative learning:

- Create a learning community (e-group projects via e-mail , Web-boards, discussion groups , e-mailing lists , etc.)
- Use Whiteboard for synchronous graphic sharing
- Use social chat rooms for synchronous text communication



5. Inform learners of objectives:

unless problem or discovery based learning is used:

- Include clear & measurable objectives
- Focus on objectives: include only most relevant & supportive Web sites



6. Activate prior leaning:

- Direct learners to recall ,describe ,or apply knowledge from past experience
- Provide links to relevant experiences
- Use learners , profile to determine prerequisite
- Relate learners to previous lessons or modules



7. Provide guidance and feedback:

- Provide syllabus and timeline for assignment
- Provide timely and prompt feedback (e-mail, posting reminder to course Web site)
- Present instruction in small steps (chunking)
- Focus attention on relevant information



8. Provide enrichment and remediation:

- Provide related links to relevant topics
- Recycle back through original materials
- Provide additional practices and links
- Alternate tests



9. Scaffolding:

- Provide advance organizer
- Demonstrate and fade gradually
- Provide guidance and feedback

10. Testing and evaluation:

- Use appropriate online or offline tests
- Use objective or subjective tests
- Use e-portfolio of artifacts
- Use Course Management Systems (WebCT, Blackboard) to keep students informed(gradebook)
- Use assessment techniques appropriate for learning tasks (Bloom Taxonomy)
- Use varied and frequent self-tests to guide the learner and provide feedback



11. Enhance learning transfer and integration

- Provide opportunities to relate learning to real life settings
- Provide opportunities for reflection
- Ask students to explore new ways to use their new knowledge and skills



E-Learning and Blended Learning

- E-Learning is well suited for cognitive skills
- Blended learning is appropriate for:
 - Psychomotor skills
 - Attitudinal skills



Recommendations

1. E-Learning solutions in the Human and Social sciences should be based on sound ID principles
2. Universities should provide training and professional development for faculty interested in exploring Web-based instruction
3. Universities should provide technical and instructional support for faculty teaching via Web-based instruction