



Enhancing Learning Skill through e-Learning Application



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Topics...

1. Education Concept
2. Teaching & Learning Components
3. Information System (IS)
4. Future Trends of Information Technology (IT) or ICT
5. Education Through e-Learning
6. Visualization

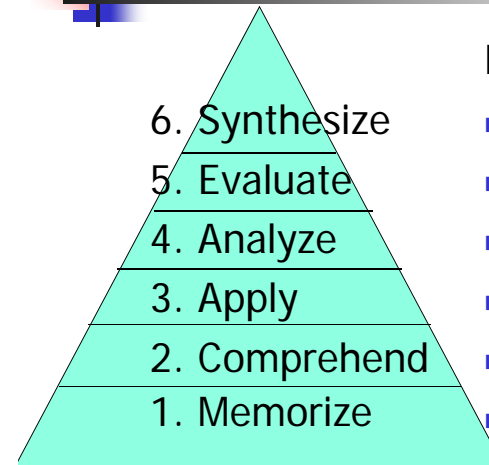


1. Education Concept

1. Objective : Behavioral
 2. Learning process : Student-Centered
 3. Evaluation : Formative/Summative
- Bloom's Taxonomy: 3 Domains
1. Cognitive Domain (Knowledge) : Head
 2. Psychomotor Domain (Skill) : Hand
 3. Affective Domain (Attitude) : Heart



Cognitive Domain (Knowledge)



How to ask...

- Create..., Innovation
- Compare...with criteria
- Compare...
- Solve problems...
- Explain...
- What is...



Psychomotor Domain

Factors

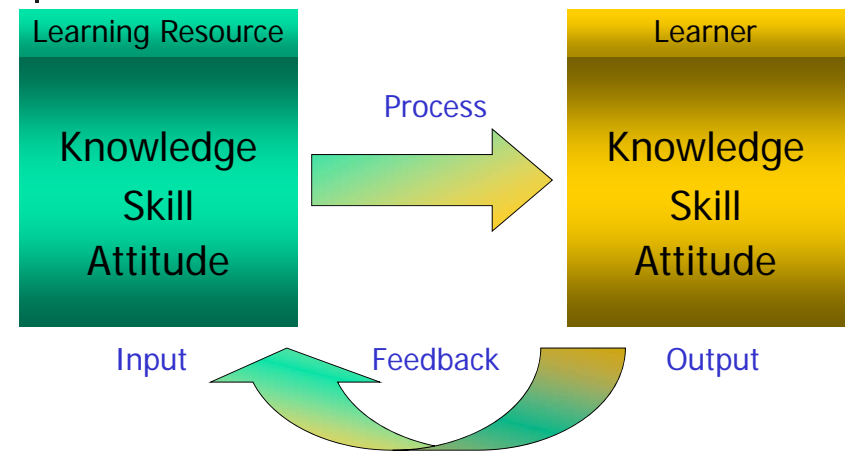
- Quantity
- Quality
- Time
- Satisfaction

Levels

1. Beginner
2. Intermediate
3. Expert / Advanced



2. Teaching & Learning Components



Education & Computer Roles

- Objectives: More specific Learning Outcome
- Learning process: Traditional/Flip classroom
- Evaluation: Interactive tutor

3 major domains

Computer Roles

- Cognition, Knowledge → Show
- Psychomotor, Skill → Do **
- Attitude → Feel



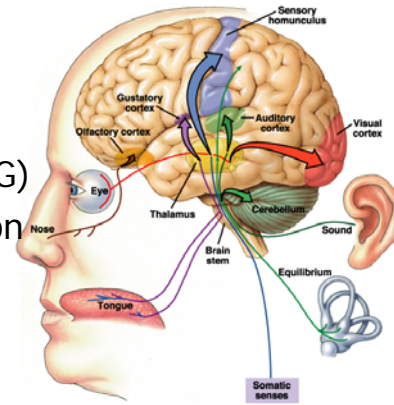
Nature of Learning

- “Do” is more important than “Show”
- “Feel” → “Do” → Skill & Creativity
- How to learn depends mainly on
 - Learners’ personal habits: curiosity **
 - Listening/reading, thinking, asking, writing
 - Apply theory to practice
build up → Knowledge, Skill, Attitude
 - Nature of knowledge & Information
 - Instructional Design *



Learning skill: Questioning

- Stimulus
- Attention → Observation
- Thinking: Brain wave (Electroencephalogram-EEG)
- Speaking: Voice Recognition
Writing: Optical Character Rec.
Drawing: Pattern Rec.
Gesturing: Pattern Rec.

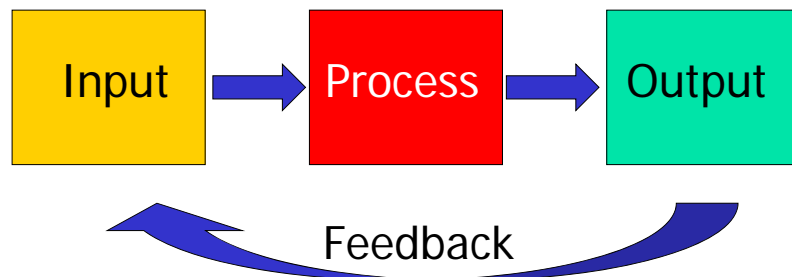


3. Information System

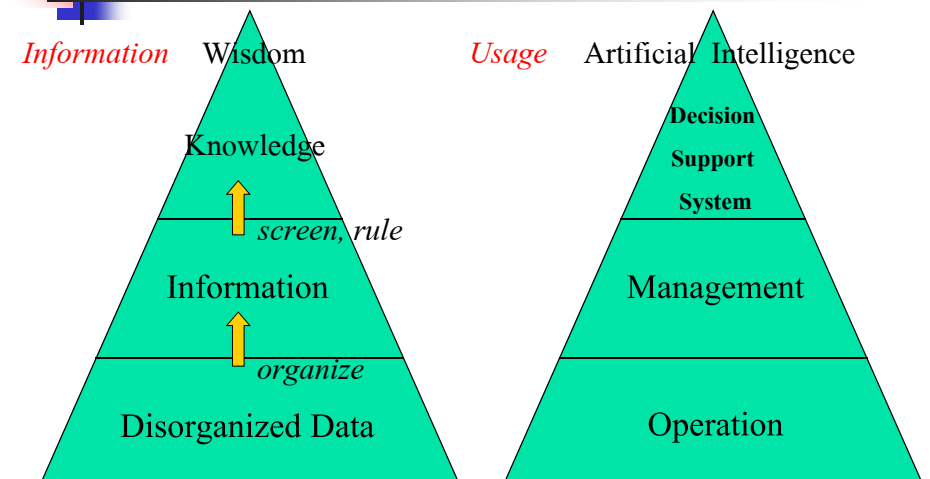
- What is Information System?
- What is a System ?
- What is Information ?
- What are data, information & knowledge?



What is a System ?



Management Information System-MIS





Information System Concept

- Collect → Capture → Create
Data/Information/Knowledge
- Storage: Big data, Sky Drive
 - Update: Faster, near real-time
 - Retrieve: Locally or Online
 - Exploit: Immediate application



Searchable Information

- X Graphic ✓
- X Sound ✓ 
- X Smell
- X Taste
- X Cutaneous sense
- ✓ Text only !!



4. Future Trends of IT/ICT

- Information Technology & Communication
- Information & Communication Technology
 1. Computer Technology
 2. Communication Technology
 3. Contemporary Technology



Computer Technology

- PC / Notebook / Tablet PC / NetBook
- Smaller but more capable Hand-Held Electronic Device **:
 - SmartPhone / GalaxyTab/Note
 - iPhone / iPad
- Smaller size but bigger storage:
 - Memory: Thumb Drive, Memory Stick
 - External Disk Storage: Ext. HD, Sky Drive
 - CD-ROM/VCD (650MB), DVD (4.7 GB)
 - Blu-Ray Disc (25/50 GB)



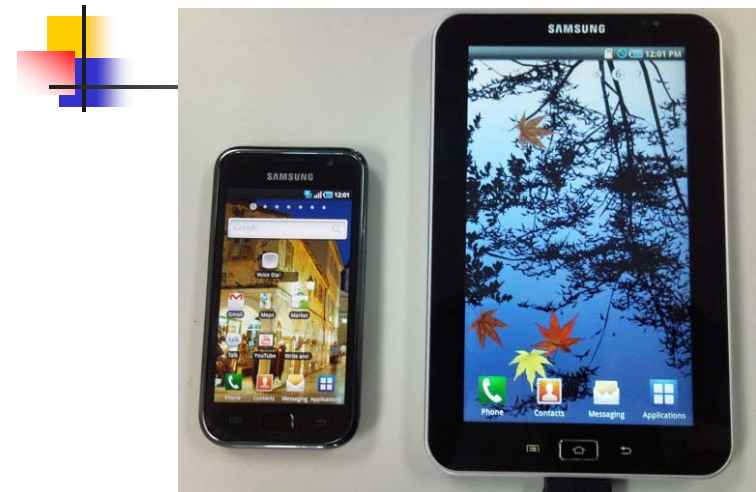
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Input Device

- More virtual but manually manipulate
- Virtual Keyboard, Mouse, Touch screen
- Pen computing * : VisTablet/PenPad, IntelliPen
- Leap Motion*, Myo Gesture Control*
- Pattern Recognition / Voice Recognition
- Interactive White Board
- Digital Camera & Digital Video Camera
- Scanner + Optical Character Recognition (OCR)
- Recorder: Digital voice/sound

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VisTablet/PenPad

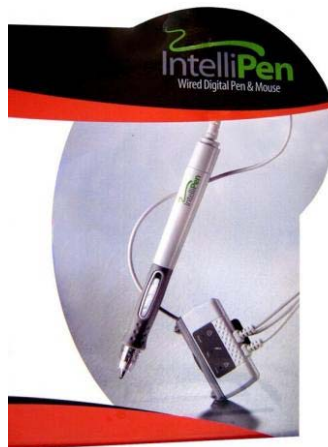
- <http://www.frys.com/product/6219210>



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IntelliPen - SVOA



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Leap Motion

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Myo Gesture Control

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5. Education Through e-Learning

- Web-Based Instruction (WBI) → Show / Do / Feel
- Computer Based Instruction : CD-ROM, DVD, HD
- Tutorial : → Show / +Feel
 - e-Books
 - Demonstration
- Drill and practice → Show / Do / Feel
- Procedural help / Lab manual → Show / Do / Feel
- Computer-Based Skill Training → Show / Do / Feel
- Social media : FB, Webboard, Weblog

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Education Through e-Learning (2)

- Intelligent Computer Assisted Instruction (CAI)
 - Interactive discovery
 - What / If
 - Self-Directed Learning
 - Animation & Simulation
 - Game / Problem Solving
 - Artificial Intelligence (AI) :
 - Natural Language Parser (NLP)

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6. Visualization **

- Space
 - Size: too large / too small
 - Dimension: 3D
- Time
 - Motion: too fast / too slow
- Invisible object → visible
- Low contrast → colorize
- Abstract issue → concrete

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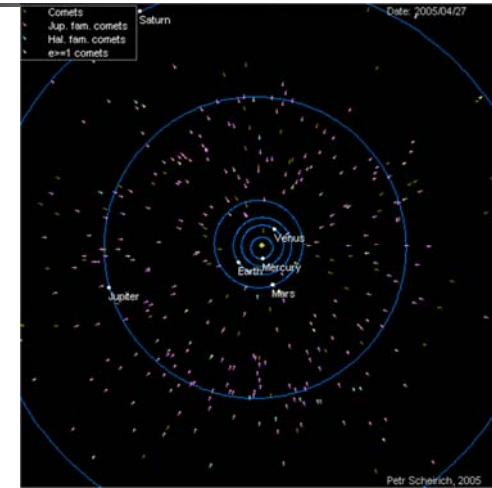


Visualization **

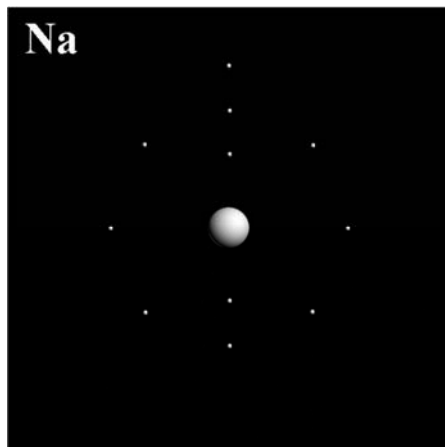
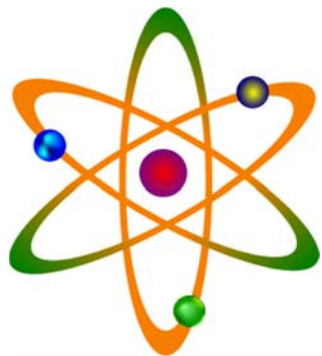
shape
Color
Dimension
Motion
SIZE



Too large: Solar system



Too small: Atom



Too fast: Tennis





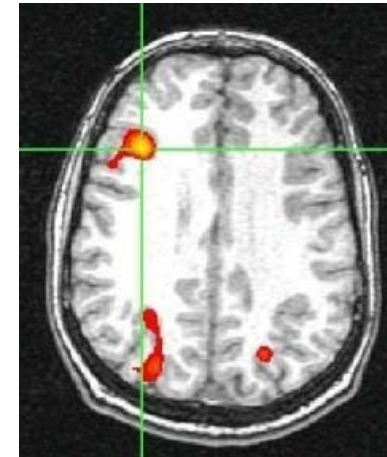
Too slow: Flower blooming



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Colorize



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Future Trends of ICT in HE

- Input device
- Learning device (material / process)
- Output device

→ Learning Outcome
(Bloom's Taxonomy : KSA)

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About the speaker

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