Computers in Education and Training

- Influences of IT are also felt in educational system not only in workspace
- Changing the way we learn.
- Economy industry is being changed to information based economy.
- Old education system (factory model)
    - It assumes that all students learn the same way and that all students learn the same things.
    - The teacher's job is to pour facts into students, occasionally checking the level of knowledge in each student.
    - Students are expected to work individually, absorb facts and to spend most of their time sitting quietly listening to the teacher.
- Schools have changed too, but not fast enough to keep pace with the information evolution.
- What should education provide students in this information age?
    - Technological familiarity
    - Literacy
    - Mathematics
    - Culture
    - Communication
    - Learning how to learn

Computer in Education

- Computer Aided Instruction
    - Computers allow students to learn based on the drill and practice principle.
    - The computer based training software allows students to learn at their own pace, in small steps and give feedback about how much they have learn
    - A traditional drill and practice program presents the student wit a question and compares the student's answer with the correct answer. If the answers match, the program offers praise; if the answer does not match , the program offers an explanation and presents another similar problem.
    - The program may keep track of the student responses and provide report on student progress to the teacher.
    - Today most drill and practice programs embed the lessons in animated games, but the underlying principles remain the same.
    - Most CAI programs combine tutorial material with drill and practice questions, in the same way a mathematics textbook alternates explanations with exercise.
    - CAI software is one of the most common types of educational software for three reasons: it is relatively easy and inexpensive to produce, it can easily combined with more traditional educational techniques, and it produces clear, demonstrable results.
    - Advantages
        - Individualized Learning
        - Motivation
        - Confidence
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- Programming Tools
  - Seynour Papert developed a computer language called LOGO, so that children could build program computers, rather than the other way round.
  - Children can write LOGO programs as soon as they are enough to read and write a few simple words.
  - Rather than teaching through lessons and tests, LOGO creates environments for learning.
  - Would help children become better at general problem solving and logical thinking.

- Simulation Games
  - Computer can provide an environment that makes learning mathematics, science and the arts as effortless as learning Nepali in Nepal
  - Children learn best through exploration and inventions.
  - Simulations allow students to explore artificial environments, imaginary ot based on reality.
  - Educational simulations are metaphors designed to focus student attention on the most important concepts.
  - Look and the feel of a game, they challenge students to learn through exploration, experimentation and interaction with other students.
  - The students are in control of the learning environment.
  - It is up to the student to find and use information to draw concisions,
  - Students can experience the consequences of their actions without taking real-world risks.
  - Allow students to have experience that wouldn't be possible otherwise.
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- Productivity Tools
  - To use computers as tools.
  - Some schools also provide special – purpose tools for classroom use, including:
    - Laboratory sensing hardware and software
    - Collaborative writing groupware
    - Music synthesizers
  - Whether the computer is used as a tutor or a tool, the addition of multimedia adds whole new dimensions to the educational process.
- Computer- Controlled Media
  - Using computer graphics, videodiscs, CD-ROMs and digital media to convey information in a more dynamic form.
  - Depending upon the way these media are used, the student's role might be to observe the presentation, to control the presentation, or to create the presentation
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- Presentation Aid
  - Uses computers and multimedia technology to create in-class presentation
    - History - use of different images, videos in class
    - Science – use of 3D graphics and animation program to model different molecules and demonstrate in class
    - Art - illustrate an art history using digital media like CDs.

        - Music – music synthesizer
        - English literature
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    - The advantage of computer technology is that the materials can be customized to meet the needs of the class.

- Hypermedia and Interactive Multimedia
    - To get students more involved in the learning process, many teachers use hypermedia and interactive multimedia software that put students in full control.
    - Some are simple tutorials with sound and / or video; others are multimedia reference tools with hypertext cross- references that allow students to jump quickly from topic to topic or change the way the information is displayed.

- Authoring Tools for students
    - Allow students to create their own multimedia presentations.
    - Students are more involved in such type of projects.
    - Promotes the learning process
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- Distance learning : virtual Schools
    - Using technology to extend the educational process beyond the wall of the schools.
    - Computers, modems, fax machines, satellite video transmissions, the internet and other communication technologies offer many promising possibilities.
    - Network with other students in other part of the world
    - Handicapped students can do course work without traveling to central sites.
    - Two way video links allow visiting experts to talk to students in outlying classroom and answer their questions in real time.
    - Telecommunication technology is very much important

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