

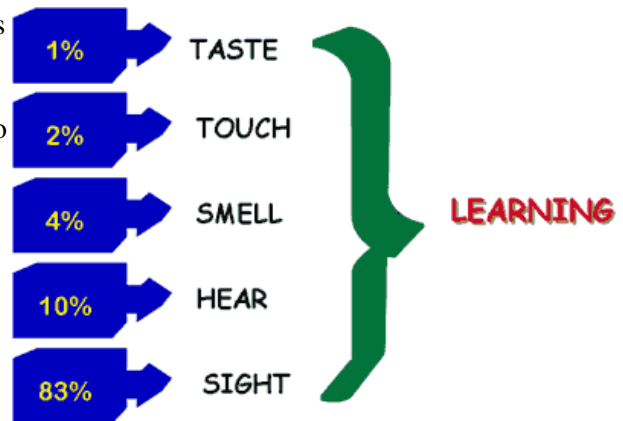
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# Learning & Training

## Learning

### Learning

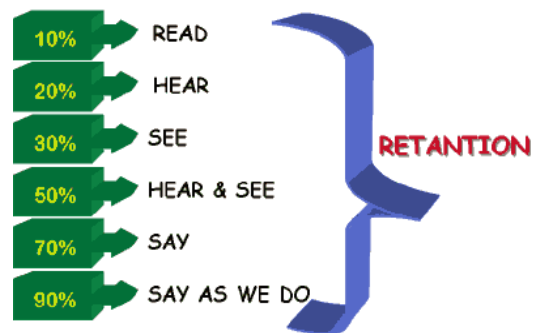
Learning is a complex phenomenon that explains interaction among a number of parameters such as: individual differences, background knowledge, context, motivation, readiness and so on. However, we can still define learning as a change or progress in the current capacity of an individual including his/her cognitive, affective, and psychomotor capacities. For example, if a person is exposed to a learning experience, eventually (s)he is expected to know, feel or behave in a different manner or improve his/her current status. Since learning as a phenomenon cannot be labeled under a single approach, there exist a number of complementary approaches.



### Information Acquisition

From this point of view, learning occurs with a construction of associated mental representation. The suitable instructional method is guidance and facilitation of learners in authentic tasks environments. The role of the instructor is serving a cognitive guide and learner's job is making a problem or a task related their academic or professional progress meaningful by trying to solve it in diverse paths. These types of courses are named as guided discovery. These types of e-learning are suitable for distal performance goals which are in unpredictable job situations

Of What We Learn We Retain What We



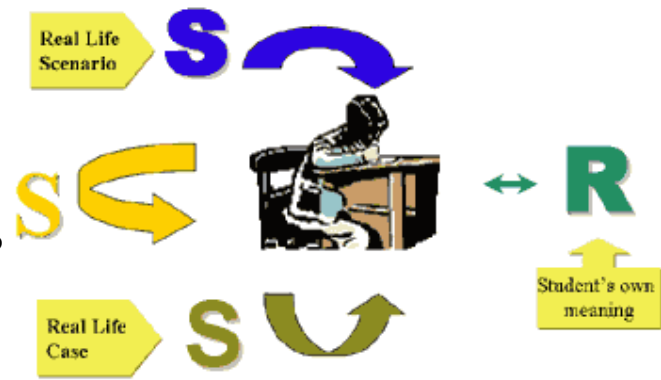
### Response Strengthening

In this view, learning can increase or decrease by using stimulus and response associations. The suitable instructional method is drill and practice, which are well-known computer or internet based modules. The general working principle of them is based on the questions, answers, rewards, and punishments. Corrects answers are associated with rewards and incorrect are associated with punishments. The instructor provides questions and feedbacks subsequent to presentation of short segment of the lecture. The learner's role is giving answers to these questions correctly and revising the incorrect answers based on the feedbacks. These types of course are named as directive or show and do courses. The general components of this kind of course include small steps, demonstration or examples, frequent practice and corrective and immediate feedback.



## Knowledge Construction

From this point of view, learning occurs with a construction of associated mental representation. The suitable instructional method is guidance and facilitation of learners in authentic tasks environments. The role of the instructor is serving a cognitive guide and learner's job is making a problem or a task related their academic or professional progress meaningful by trying to solve it in diverse paths. These types of courses are named as guided discovery. These types of e-learning are suitable for distal performance goals which are in unpredictable job situations.



## Epistemology of Learning

The diverse nature of the learning stems from the underlying explanatory philosophies of knowledge. The followings are the major fundamental ideas to explain the place and relation with human of knowledge. (Driscoll, 2000)

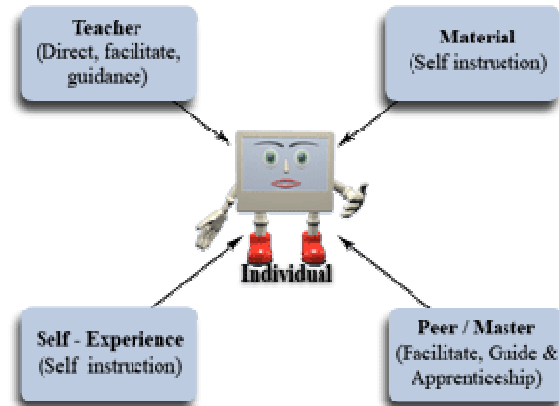
Fundamental	Definition
Empiricism	Sensory experiences are the unique source of knowledge
Nativism	Some knowledge coming from our born (innate)
Rationalism	Reason is the only source of knowledge
Skepticism	One cannot know something exactly; there are always some questions about known thing.
Realism	Things in the world can be known directly
Idealism	Knowledge is the representation and ideas of the reality.
Pragmatism	Knowledge cannot be known directly. Knowledge is trustable but not completely. The way to reach knowledge is rational and experiments. Knowledge is sometimes reality but sometimes not.
Objectivism	Knowledge exists in separate position from a person. Empiricism and realism are the ways to reach knowledge.
Interpretivism	Knowledge is constructed by person, idealism and rationalism is the way to construct knowledge.

## Teaching & Training

### Teaching & Training

Teaching is the process of utilizing several sources including content, environment, and material to facilitate learning. In other words, all types of manipulation aimed to have individuals learn new capacities are called as teaching activities. Even “teaching” is a general form of describing such activities, it includes context-based activities such as training and instruction. The main difference between training and instruction is that the purpose of teaching, context, and learners. For example, a preservice teacher might take a course to learn how to use a computer. Thus, he is taught on the basics of computer use. When he becomes a teacher and starts working for a school, he might need to receive extra training to learn how to use Learning Management System that the school at which he work has been using. Another example, a first year primary school student’s literacy learning process is the business of instruction, whereas an adult’s literacy learning process is in the scope of training because the context and individuals are different between these situations.

The diversity coming from learning also is the main reason of the diversity of teaching or training. The illustration below is the explanation of the relationships between the diversity of learning and teaching.



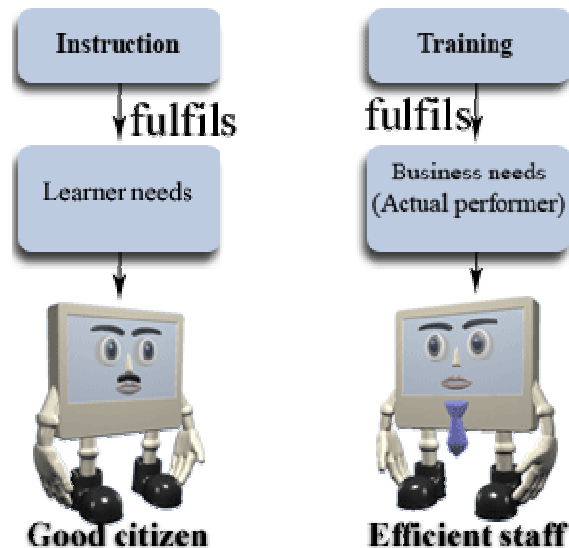
People can learn from these sources. Therefore, each of sources has its way of transferring knowledge. For instance; While an individual wants to get new information from a teacher, a teacher can instruct new knowledge directly or facilitate learner how to get this new information.

At this point, it should be noticed that especially adults learn better from their colleagues. Think, why do they so?

### Difference between Instruction and Training

The main difference between instruction and training is showed in the illustration

Instruction tries to fulfill needs of learner. Training aims to fulfill the needs of business. In instruction, we are concerning learner but in training environments we are concerning actual performers which are the staff of business environments. On the other hand, instruction's product can be both good citizen and good staff – if we consider the higher education – but training just focuses on the good staff. In other words, as far as business needs concern, instruction becomes training.



### The Role of Training

Training is explained as the way of improving a person's performance related to job environments by providing instruction. A training program should include the following components:

1. An intent
2. A design
3. The means and media
4. A more formalized assessment or certification capability.

These components can increase the effectiveness of the training. Hence, intent is the motivation and willing to participate part of training. Our target audiences are adult learner so intent is important here. Intent is a product of needs assessment. A design is the systematic structure of the

training. It determines each step while individuals learn new skills. It also includes instructional strategies and related measurement issues about these strategies. Means and media is how the instruction is conveyed. It could be a classroom, a web based environment, or combinations of different tools. More formalized assessments and certification provide accountability of the training.

In terms of training learner needs about being an employee to fulfill the business needs are so critical. The business needs shapes an employee's needs. The cumulative increment of satisfaction of employees' needs can also satisfy the business needs. These two interrelated needs should include some important properties to make training more effective and efficient.

## **Learner Needs**

Employee learning needs can be characterized in three key points: access, comprehensive approach to knowledge, and a balance between training and information.

- Access is critical characteristics because employees always need to reach the training program whenever and wherever. Four dimension of the access should be well determined. They are technical, providing required infrastructure, empowerment, having the authority to control and get the information, flexibility, the suitability to employee's schedule, and time, having enough time to meet the requirements of the training.
- Comprehensive approach: Employees expect a comprehensive approach to information that is reliable, accurate, complete, organized, and labeled easily. It should be consistent in all segments of the training programs. "This is the continuing struggle of any learning strategy—ensuring that the content is always the right content, in the right format, and continuously available" (Rosenberg, 2001, p.15.)
- Balance: Type of information should be carefully analyzed so suitable training program should select based on it. For example, you do not need to get extra training for a copier machine working steps. However, for new software you might need extra training. Everything cannot be content for training programs.

## **Business needs**

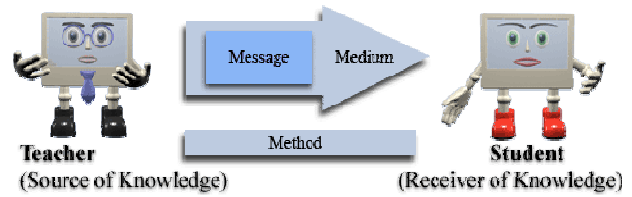
To meet employee learning needs, businesses also have three key requirements: the right information, an open culture, and an effective technology.

- Information: The main worry of business is providing right information to right individuals in right times. Therefore, the training of person equipped with the right knowledge is important. Well-organized and selected training programs are required to increase persons' right knowledge.
- Open culture: Organizations are willing to create open culture that triggers the information sharing rather than hoarding it in general. They can achieve this culture with aid of learning organizations. Learning organizations can be developed with training, e-learning, or other performance improvements tools.
- Effective technology: Companies always searching for the most cost-effective way to meet their business needs. Sometimes, arriving to information becomes so hard and needs more efforts so this becomes a big problem in business environments where time is money. The new technological innovations include diverse tools to minimize these kinds of problems, such as Internet. One can reach any kind of information in any time and any place. That is why each role in the organizations is redefining due to the radical proliferation of the new technologies.

## **Means & Media**

The means and media of the training have

You can use any kinds of media that are suitable for business needs. The actual role of media while instructing a new skill or a topic is illustrated in the following figure.



This figure is the standard representation of the communication theory. In traditional class situations, teacher is the source of knowledge and students are the receiver of the knowledge. However, the medium is a critical role in this essence. Hence, the type of the medium can shape environments of communication. For instance, message can be a television or a computer and beyond those it can be e-learning web page. Again, there are source(s) and receiver(s) but they should be determined based on the general aspects of the medium. Our main focus in this lecture is concept of e-learning and web based instruction or training. This diagram explains how e-learning is located in the education or training context. Although we are using innovative medium, the mentality of the instruction or training cannot be changed.

Method	Message
<p>It can be:</p> <ul style="list-style-type: none"> <li>• Direct</li> <li>• Guidance or facilitation</li> <li>• Apprenticeship</li> <li>• Self - instruction</li> </ul>	<p>It can be:</p> <ul style="list-style-type: none"> <li>• Teacher's voice or body language</li> <li>• Television</li> <li>• Radio</li> <li>• Computer</li> <li>• Web page</li> <li>• Interactive web page</li> <li>• E-learning web page</li> </ul>

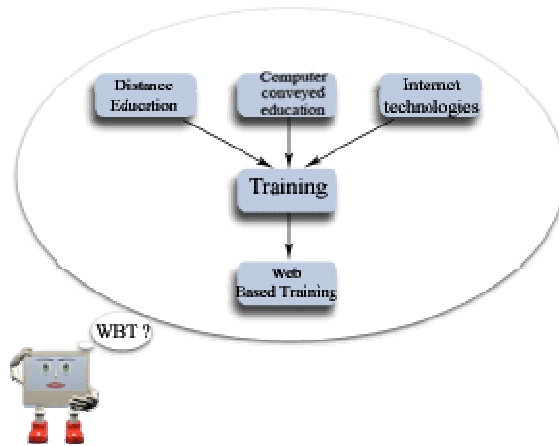
## ***Why WBT***

### **Distance Education**

Distance education is an alternative education type. If we look at the communication diagram, the communication between source and receiver conducted in separate psychical places in distance. Hence, source and receiver do not have opportunity to come together. However, this separation is not a disadvantage because of technological medium, such as print materials, audiovisuals, radio, television, teleconferencing, computer based instruction, and web based instruction. That is the main and the simple reason of the distance education. Beyond that this main and simple reason, distance education has some advantages stemming from its usual characteristics. First distance education can provide correspondence and independent study including both time and place independency. In other words, learners can learn new knowledge in any time and any place. The second one is requirement of learner autonomy. The learner autonomy is related to self-control of the learner. In fact, it includes intrinsic motivation level of learner. The nature of distance education becomes a foundation for e-learning and web based environments.

### **Web Based Training**

Computer conveyed instruction is a trend that computers have been started to use for educational purposes. After that point, there have been lots of discussions about this topic. However, most important contribution of computer to education is their capability of tracking, making lots of jobs at the same time, self-pacing, and – the most important one – internet. Computer technologies and their usage in education constitute a platform to use internet in education.



Internet technologies can support world wide communication. Internet technologies contain some of the vantage components of distance education naturally. For example, internet technologies can support time and place independency because computer servers are working 7/24. It is indispensable that this kind of technology is the main medium of instruction or training. If we are talking about cost-effectiveness and efficiency and if this place is a company, internet becomes a cheap alternative as compared to other training programs.

With advancement of the new technologies, the training concept becomes web based training concept.

### Distance Education Support Media

- Print
- Audio Video Cassette
- Radio and TV
- Teleconferencing
- Computer based instruction
- Web pages / Interactivity (Internet technologies / Computer Technology)

### What is e-learning?

E-learning is delivery of instruction by computer that can be form of CD-ROM, software, web page, intranet, internet and any other related technologies. It also has learning objective organizing content, instructional method, media, and development of new knowledge, skill, and abilities which can be from individual to organization.

The following questions that are the vital requirements of e-learning should be illuminated with suitable instructional design methodologies

The critical questions for e-learning		
What does include in e-learning course?	How are delivered via computer?	Why do we use e-learning environments?
<ul style="list-style-type: none"> <li>▪ Content</li> <li>▪ Method</li> </ul>	<ul style="list-style-type: none"> <li>• Spoken Texts</li> <li>• Printed Texts</li> <li>• Pictures</li> <li>• Videos</li> </ul>	<ul style="list-style-type: none"> <li>• Objectives</li> <li>• Accountability</li> <li>• Utility</li> <li>• Significance for individual and organization</li> </ul>

## What Makes E-Learning Valuable?

- Practice with feedback: E-learning can support both synchronous and asynchronous interactivity so that an individual can get immediate feedback. Feedback helps learner to direct his/her learning process to objectives of the lesson. It is also part of the formative evaluation.
- Collaboration in self-study: Some tools of e-learning, such as chat, e-mail, discussion forums, are supporting real time communication that can be part of collaborative activities. In fact, an individual is not alone completely in an e-learning environment. With aid of these tools, (s)he can become involve in a collaborative learning environment.
- Use of simulations to accelerate expertise: E-learning environments would consist of small reflection segments of real life that is named as simulations. Simulations can be developed as presentation of unreachable or dangerous situations or problem case that needs to be solved. Because of the reflection of real life, staffs can easily be an expert about the topic. Simulations should have two fidelities, which are psychical and psychological fidelity. That means that a simulation should contain both psychical and psychological aspects of real life situation. For instance, a pilot should be in a cockpit during simulation. That is psychical fidelity. On the other hand, (s)he also feels the climate and other related things while using flight simulator. It could be possible by using some tools which are shaking cockpit due to a fault and so on. The case problems are accelerating expertise because problems are generated based on real job situations. For example, business games industrial engineering games

## WBT

E-learning should include what content and methods, how delivers, and why required components. Web based training aims to develop an e-learning environment based on the answering these three questions. The way to answer them is instructional design process. This topic is further chapter's topic. Instructional design support your web based training environments based on some analysis. With aid of these analyses, you can develop meaningful learning environments in electronic format. For example, while needs assessment process, designer can determine some needs and transform them to objectives. Designer further can organize the content based on the objectives. In development phase, designer can develop or select appropriate media for web based training. At the end, with evaluation and needs assessment parts, designer can present evidences about the usefulness of web based training.

## Knowledge Economy Skills

The report of European Round Table of Industrial (2001) defines the new economy of the world as 'knowledge economy'. This economy requires more competitive personnel. To be part of knowledge economy as an individual, an organization, or a country, they propose the following recommendations:

- Set precise targets for knowledge economy skills and attitudes to be acquired by the minimum school leaving age.
- Harness the experience of business for the benefit of education.
- Begin the process of conferring a new status and value on the teaching profession.
- Create a European on-line lifelong learning service.
- Develop local and regional fora of representatives of government, education and business to define the short, medium and long-term skills requirements of leading economic sectors.
- Develop local and regional fora of representatives of government, education and business to define the short, medium and long-term skills requirements of leading economic sectors.
- Secure early adoption of the Commission Proposal to create a Community Patent. Additionally, give easily attained, short term temporary intellectual property protection to



ideas that may generate economic and social value after a process of public discussion and interaction with other ideas.

- Encourage business and academia to define on-line European processes for exchange of information leading to collaboration in the development and commercial exploitation of projects.
- Stimulate Risk-Taking and bring down the Cost of Capital in Europe at all Levels
- Agree that each government will produce a master plan, with targets and timings, to ensure that the Knowledge Society becomes part of every citizen's daily experience through electronic access to the full range of public services and information. (p. 5-7).

Knowledge economy requires knowledge management to make real these recommendations. Knowledge management is realization of knowledge economy.

## Knowledge Management

There is lots of information publishing in online format . However, most of them are not trustable to use for every location. The question is how we can make information valuable to use in these situations. This question is the general concern of knowledge management field. Knowledge Management is a special field that tries to create reliable, usable, accessible, and well-organized information sources on the online environments.

Knowledge management:

→Creates

→Archives and

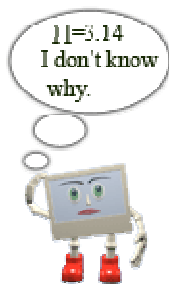
→Shares valued information and expertise between or within organizations with similar interests and needs.

Knowledge management systems should be flexible, easy to understand, dynamic, manageable, valued by people, supportive to learning culture. Some organizations try to put everything that can be knowledge for organization but that is not recommended way because it is hard to manage and not to be valuable to other persons.

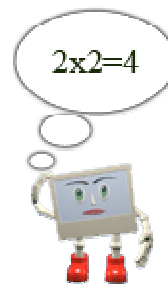
## Types of knowledge

To manage knowledge management systems, one has to be capable of what types of knowledge exist. There are four different types of knowledge:

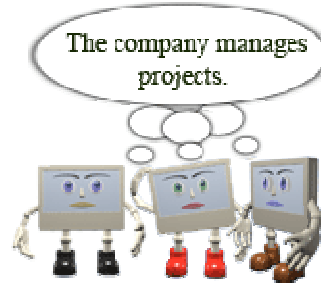
1. *Tacit knowledge*: Hard to describe and code to documents, procedures, and training programs.
2. *Explicit knowledge*: Easy to describe and code to documents, procedures, and training programs.



3. *Individual knowledge*: A person's knowledge



4. *Organizational Knowledge*: A cumulative of common and shared knowledge of persons in an organization.



## ***Where WBT Fits in***

WBT training is good manner for universities, companies and others that are learning portals or sites.

Universities are pioneer of the distance education and its derivatives. There are lots of universities providing on-line or web based instruction or training programs. They are not only providing on-line learning but also improving and developing them based on research and theories. The second important area for WBT is companies. They really desire to use WBT. WBT has many advantages for companies. If these advantages can be realized, WBT will be exactly a successful attempt. On the other hand, WBT creates a market including learning portals, learning sites, or on-line training companies. The main purpose of the learning portals and learning sites is presenting knowledge as much as possible effective way. On-line training companies try to sell their training to individuals. One can learn new things without being a member of an organization.

### **Examples:**

#### *Universities*

- Metu Online: <http://online.metu.edu.tr>
- Michigan Virtual University: <http://www.mivu.org>
- Abet Open University \_Online MBA program:<http://mba-open-university.net/>
- University of Minnesota\_University Technology Training Center, available at <http://uttc.umn.edu/training/>
- University of California/Lawrence Livermore National Laboratory, Hazards Control, Computer Assisted Instruction for External Customers, available at <http://www-training.llnl.gov/wbt/#WBT>
- The Internet University, available at <http://www.caso.com/index.html>
- Center for Instructional Technologies, University of Texas, World Lecture Hall, available at <http://web.austin.utexas.edu/wlh/>

#### *Companies*

- Advance Online: <http://www.advanceonline.com>
- Avalon Computer Center – E-learning Center: <http://www.elearning-centre.com/>
- Altus Learning Systems <http://www.altuscorp.com/>
- Vision 101: Good example for WBT, available at <http://www.1800contacts.com/vision101/>
- William Horton Consulting site, available at <http://www.horton.com/DesigningWBT>

#### *Institutions*

- The Institute for Healthcare Improvement’s WBT courses, available at [http://www.ihl.org/IHI/Programs/ConferencesAndTrainin g/GausModelforImprovement.htm](http://www.ihl.org/IHI/Programs/ConferencesAndTrainin/g/GausModelforImprovement.htm)
- National Endowment for Financial Education provides Americans with practical money-management skills and an introduction to financial planning through course work that covers the fundamentals of money management,

## ***Advantages & Disadvantages of WBT***

### **Advantages of WBT**

In addition to advantages of computer based training \_ they are constant availability, non-judgmental testing, and instant feedback. It has also own the following advantages:

- Access to Web-based resources: It makes information easily accessible seven-day and twenty-hour.
- Centralized storage and maintenance: Information can be stored on the one center. Therefore, its control and maintenance becomes easy.
- Collaboration mechanisms: There are many effective tools to support collaboration, such as chat, e-mail, and discussion forum. This collaboration does not have to be in the same physical places or at the same time.

Advantages of WBT can be classified based on learner, instructor, and organization.

### **Advantages for Learner**

- WBT improves the effectiveness and efficiency of learning: The effective instructional design process may provide different and better teaching techniques in WBT.
- WBT activates learner: WBT provide more challenging environments. Active navigation of learner plays an important role. Due to high learner control, learners are more responsible of their learning.
- WBT provides real world data: WBT can expose real world data because of its huge amount of data storage. Real world data make learning more concrete and meaningful. Real world data support also help learner to conduct some analysis about a topic.
- WBT provides more in-depth learning experiences: WBT can provide all aspects of the topic. Therefore, learner can investigate the topic as much as (s)he can.
- WBT can develop better thinking skills.
- WBT lets learner reflect before responding: Learner have time to response any event while they are discussing in e-mail or discussion forums.
- WBT promotes collaborative learning: Learner can discuss, debate, brainstorm with other colleagues via e-mail, chat, and discussion forum.
- Learner can get the best instruction available in WBT.
- WBT can support time for discussion which has to be constrained due to limited time.
- Training can be applied in any time. If your web based system is ready, you can start training anytime you want. However, in traditional training, companies should make some arrangements for training programs.
- Learner has independency for scheduling and their learning pace.
- With help of effective communication tools, learner can get better access to instructor.
- Learner has a chance to show their works on the internet.
- WBT can be adaptable to learner's needs and styles individually.
- Learner gets immediate feedback in WBT.
- Learner is treated more equally in WBT.
- WBT saves money and time for not only companies but also learners.
- WBT produces general side effect on learner: During web based training course, learner can advance own computing skills, online reading skills which are useful every time, self-discipline or self-autonomy, being responsible of own learning and writing skills.

WBT helps learner to identify necessary resources: WBT can support diverse source of knowledge. After the course, learner can access these resources to retain their knowledge. Moreover, learner can

be capable of accessing information on the net, such as libraries, electronic digital indexes, and other related sources.

### **Advantages for Instructors**

- Instructors can teach anywhere. Instructors can reach course in any place with internet connection. Instructor can lead discussion, provide feedback and etc. This is good for mobile instructors.
- Instructors do not have to travel because of training so they can have extra time for improving their teaching activities.
- Course content can be dynamic so instructors can add new packages to course if necessary. Hence, instructor can improve their course with innovative advancement about subject matter.
- Instructors can gain time which is coming from reduction of administrative procedures. For example following works are reduced:
  - Having handouts and course packs printed
  - Handing out assignments, notes, and other papers
  - Collecting assignments
  - Returning graded assignments
  - Making announcements
- Instructors can check learner's fact and references. Instructors can access easily quoted materials.
- WBT is as effective as classroom teaching so we can prefer to use it.

### **Advantages for Organizations**

- WBT can reduce expenses of normal training: In WBT programs, companies do not need to invest their budget to facilities, supplies, and administrative purposes. If you have to train lots of persons at the same time, these expenses for each person become huge amount of investment.
- WBT uses effective learning technologies: Learning technologies can improve learning. With aid of these technologies, learner can reach enriched learning environments. For instance, these technologies can support different types of medium for knowledge. The critical thing is here that effective instructional design process.
- WBT delivers consistently high-quality training. At the same time, organization can provide same training program to their employee. Therefore, training cannot be influenced in other factors, such as instructor quality, classroom environments, and etc.
- WBT provides training that there is no need to travel around the world. This really reduces total expenses of training program.
- WBT provides flexibility to organizations. The new materials can be added, revised, or deleted while the course is carrying on. Courses can be developed based on individuals' needs and styles.
- WBT can integrate training with work. Therefore, employees do not have to leave their job for training.
- WBT creates valuable learning resources. Tools of WBT, such as chat, discussion, or forum, are not only part of the lecture but also resources for required knowledge. Learners can also get information outside from the course.
- WBT keeps organizations' expert on the job. Experts do not need to go to teach their knowledge to other employees. Therefore, they can teach their knowledge via internet. Hence, they are always on the job.
- WBT helps recruit workers to adapt organization and learn new skills continuously. They can always access required sources via internet based training programs

## Disadvantages of WBT

- WBT requires more works:
- More instructor effort requires
- Conversions take longer time than expected
- More learner effort requires
- Excellent or near excellent instructional design and production requires
- Isolation of human from the natural society can be an inhibitor.
- Distance learning seems to be impersonal
- Technical requirements are not easily to be fulfilled.
- WBT can destroy existing structure if it is working well. If you try to make these kinds of dramatic change, it could create new problems that can be solved or not.
- Lectures are not so bad. Most of the empirical studies about instructional techniques have been using lecture methods as control group. It is interesting that it is always as much as effective other innovative methods. This is the evidence that lecture method is useful in all kinds of conditions.
- Learners' choice is important for WBT. It is critical that your trainees could have intention to take training in a traditional format. If you do not consider these situations, your WBT program cannot be worked effectively and efficiently.
- Some professionals resist participating WBT as both learner and instructor. It is a usual process that most of the people are willing to adapt themselves to an innovation, like WBT.
- Feeling of being obsolete is another problem of WBT. Some professionals and experts – especially it is related to age – can feel like these situations.
- Due to huge diversity of knowledge, WBT can distort learning rather than improve it. There are too many distributors, distracters, and hypermedia chaos. Moreover, some students can suppose that everything get from computer seem as credible resources. However, it is not valid for every web based sources.

If training is a reward for individuals, transforming it to WBT creates a disadvantage because employee motivation decreased.

Dropout rates are high in WBT programs. This creates threats to your effectiveness of program.

Every topic is not possible to teach with WBT. Soft skills, such as team leadership, psychomotor skills, dealing with difficult people, and giving effective feedback, are difficult to teach by any means. Since computers cannot do these things, WBT cannot teach these skills.