

ADVISOR 3.5

User's Guide

ADVISOR 3.5 User's Guide

Copyright (c) 2000 BNH Expert Software Inc.

All rights reserved. No part of this publication and/or software may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise without the prior written permission of BNH Expert Software Inc., 4000 Steinberg Street, Saint Laurent, Quebec, Canada, H4R 2G7.

Printed in Canada

Acknowledgement

ADVISOR 3.5 is the result of many years of research, experience, testing, discussions and evaluations. Many individuals and organizations have contributed to the development and evolution of ADVISOR and for this we are very appreciative. Our primary objective is to develop a scientific, simple and reliable methodology for analyzing a course to determine the most effective and economical method to deliver the training. We strongly believe that with the assistance and contribution of the following organizations and individuals we have been able to accomplish this goal.

- ◆ Canadian National Defence
- ◆ National Security Agency
- ◆ United States Air Force
- ◆ United States Army
- ◆ United States Marine Corps
- ◆ United States Navy

- Larry Alberter – National Security Agency
- Cathi Billings – Sheppard AFB
- Ferrell Briggs – Naval Aviation Maintenance Training Group
- Rick Cheek – Keesler AFB
- Dr. Ed Chenette – Chief of Naval Education and Training
- Dr. Adelaide Cherry – Maxwell AFB
- Beverly Condon – Goodfellow AFB
- Frederick Glover – Naval Aviation Maintenance Training Group
- Richard Grahlman – Naval Postgraduate School
- Betty Sue Jones – Maxwell AFB
- James Kalivoda – Naval Education and Training Professional
- Dr. Bill Melton, US Army – TRADOC
- Jesse Martinez – US Marine Corps
- Hector Moya – Goodfellow AFB
- Vangie Nix – Maxwell AFB
- Arlene Parker – Keesler AFB
- Dr. Albert Pruett – Naval Aviation Maintenance Training Group
- William Schafer – Trident Training Facility Bangor
- Robert Simmon – Naval Technical Training Center
- Gary Troy – Goodfellow AFB

Thank you.

J. Bahlis, Ph.D. Eng.
President
BNH Expert Software Inc.

ADVISOR 3.5 New Features

The main objectives were to simplify the use of ADVISOR and drastically reduce the time required to analyze a course without compromising the quality and integrity of the analysis. We successfully achieved our goals by simplifying the interface, creating new wizards, generating reports in Rich Text Format (RTF) and allowing users to customize the system and import multiple wizards. A brief summary of new features introduced in ADVISOR 3.5 are presented below:

◆ New Wizards to Meet Various Needs

ADVISOR 3.5 provides different levels of analysis to meet various needs. Quickly estimate potential savings generated by alternate delivery methods by selecting the ROI Analysis option (22 questions). Find out which methods may be used for the delivery of training by selecting the Media Selection option (35 questions). Determine the most cost-effective blend of delivery options (hybrid solution) by selecting the Detailed Analysis option.

◆ Advanced Preference Features

ADVISOR 3.5 allows you to eliminate delivery options (video conferencing, for example) that are not supported by your organization, as well as exclude modules and fields (revenue analysis and employees salaries, for example) that are not relevant to your analysis. In addition, data common among multiple courses (such as audience profile and development time) can be saved in templates and reused in the analysis of new courses.

◆ Report Generation

A complete report can now be generated in a Rich Text Format (RTF) in a single click. The content is automatically loaded into your Word Processor for editing and/or printing.

◆ Import Multiple Wizards

Data from multiple Wizards can be combined in a single course. This feature is particularly useful when collecting data from course managers who deal with complex courses.

◆ Simplify Interface

Several layers have been removed and a number of screens combined to provide quick and easy access to required data. Drop down menus have also been incorporated throughout the system, and access to personal Notes simplified.

TABLE OF CONTENTS

1.	Getting Started	1
1.1	Introduction	1
1.2	System Requirements	2
1.3	Installing ADVISOR	2
1.4	Getting Started	3
1.5	Managing Files	4
1.6	Using ADVISOR - A Quick Overview	6
1.7	Learning ADVISOR	8
1.8	Information for Network Administrators	9
2.	Organization/Unit Experience	11
2.1	Introduction	11
2.2	Collecting Data	12
3.	General Costs	13
3.1	Introduction	13
3.2	Value of Trainees Time	13
4.	Course Analysis	15
4.1	Introduction	15
4.2	Divide Course into Uniform Modules	15
4.3	One or More Analysis	18
5.	Feasibility Model	19
5.1	Introduction	19
5.2	Objectives	19
5.3	Analysis and Results	20
5.4	Interpreting Results	24
6.	Development Hours	25
6.1	Introduction	25
6.2	Impact of Course Content	25
6.3	Impact of Technology	26
6.4	Impact of Experience	26
6.5	Impact of Quality	26
6.6	Estimating Development Time	27
7.	Training Cost Analysis	29
7.1	Introduction	29
7.2	General Overview	31
7.3	General Factors	32
7.4	Classroom (Instructor-led) Training	33
7.4.1	Basic Factors	33
7.4.2	Trainee Related Costs	33
7.4.3	Instructor Related Costs	35

7.4.4	Development Costs.....	36
7.4.5	Facilities Costs.....	37
7.4.6	Maintenance Costs.....	37
7.4.7	Hardware Costs.....	37
7.4.8	Summary – Total Training Costs.....	38
7.5	On-location (Instructor-led) Training.....	40
7.6	Print Based Training.....	41
7.7	Audio/Video Based Training.....	43
7.8	CBT/EPSS/WBT	44
7.9	Conferencing	45
7.10	Simulation Based Training	46
7.11	Internet – Simulated Classroom.....	48
7.12	Comparing the Costs of Alternate Delivery Options.....	50
8.	Time Analysis	55
8.1	Introduction	55
8.2	Analyzing the Value of Time	55
8.3	Computing the Value of Time	56
9.	Revenue Analysis	59
9.1	Introduction	59
9.2	Computing Revenue	59
10.	Risk Analysis	61
10.1	Introduction	61
10.2	Analyzing the Risk	61
10.3	Estimating Hidden Costs	62
11.	Module Summary	67
11.1	Introduction	67
11.2	Direct and Indirect Costs	67
11.3	Recommendations	68
11.4	Computations.....	70
12.	Course Summary	75
12.1	Introduction	75
12.2	Selecting the Right Blend of Delivery Methods.....	75
12.3	Comparing Alternate Delivery Options.....	77
13.	Data Collection Wizard	79
13.1	Introduction	79
13.1	How Does the Data Collection Wizard Work	80
13.3	Standalone Data Collection Wizard.....	81
Appendix A.	Delivery Methods	83

Chapter 1

Getting Started

1.1 Introduction

ADVISOR 3.5 is a decision support tool. It assists you in selecting the most economical blend of delivery methods [i.e., instructor-led, print, tapes, computer based training (CBT), web based training (WBT), electronic performance support systems (EPSS), audio/computer/video conferencing or Internet] that will meet your training needs.

ADVISOR 3.5 can help you:

1. **Reduce Training Costs.** ADVISOR recommends the most economical blend of delivery methods that meets your training needs. In addition, ADVISOR tracks direct (travel, per-diem, consulting, for example) as well as indirect (trainees time and administrative costs, for example) costs. Moreover, you can optimize your training environment by evaluating the impact of each variable (number of trainees per class, for example) on costs.
2. **Improve Performance.** ADVISOR evaluates organization, training and learning needs and rates the effectiveness of various delivery methods. Moreover, ADVISOR presents the reasons for the recommendations.
3. **Save Time.** Multiple wizards are included in ADVISOR to speed the analysis process. Moreover, generic data related to audience, for example, can be saved in Templates (read only files) and reused in multiple courses.
4. **Attain Consistent Results.** Data related to salaries, fringe benefits factor and annual productive days, for example, can be easily created, updated and distributed to course managers.
5. **Improve Quality Control.** ADVISOR documents decision and generates an audit trail to help organization meet ISO standards. Moreover, analysis conducted by one individual can be easily reviewed and verified by others.
6. **Support and Document Decisions.** Personal notes and assumptions to support decision can be saved with analysis.
7. **Communicate Results.** ADVISOR generates clear, simple to follow charts, tables and reports to effectively communicate the results to others.
8. **Simplify Data Collection.** ADVISOR includes a Data Collection Wizard that simplifies data collection from course managers or clients.
9. **Facilitate Communication.** ADVISOR quickly evaluates, computes and demonstrates the impact of changes (number of trainees or length of course, for example) on the project.

10. **Make Decisions with Confidence.** ADVISOR has been tested on thousands of courses and has been adopted by hundreds of organizations in various sectors.

1.2 System Requirements

- ◆ Microsoft Windows 95, Windows 98, Windows 2000 or Windows NT.
- ◆ An IBM compatible personal computer with Pentium microprocessor or higher, with 16 MB random-access memory (32 MB recommended).
- ◆ VGA or SVGA video adapter.
- ◆ Hard disk drive with 20 MB of free disk space.

1.3 Installing ADVISOR

To install ADVISOR on your local hard disk drive,

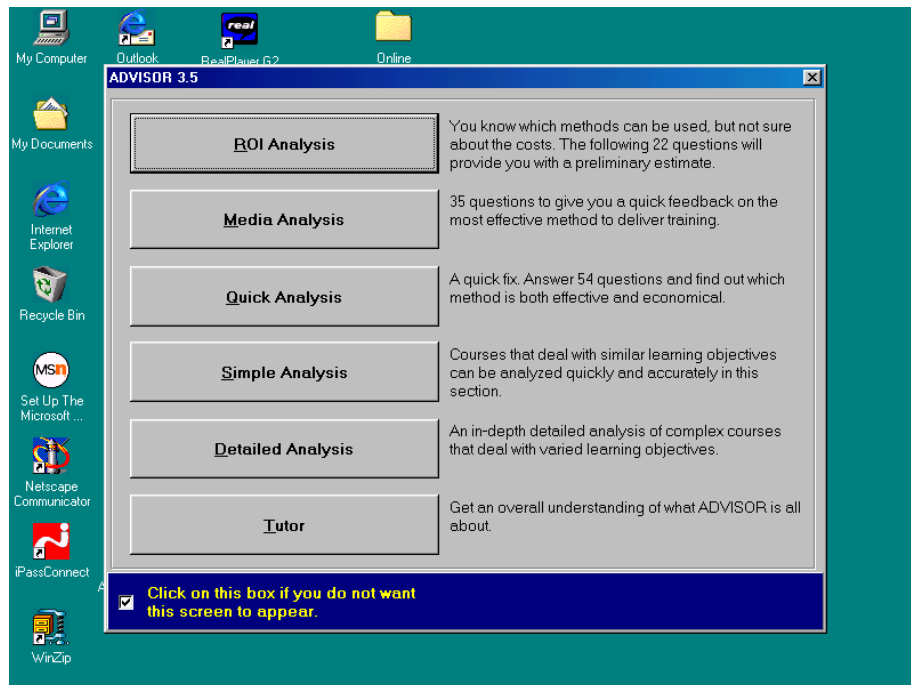
- Start Windows and close any open applications. If you are using a virus-detection utility, make sure it is disabled.
- Insert CD in the CD ROM drive.
- From Program Manager, select Run from the File menu.
- Type the letter that contains CD or diskette, colon, backslash, and the word setup [**d:\setup**, for example] and select OK.

Follow instructions on the screen.

1.4 Getting Started

Once you launch ADVISOR 3.5, a menu with six options is presented on the screen. The first four options (Wizards), namely ROI Analysis, Media Analysis, Quick Analysis and Simple Analysis provide quick answers to simple courses with comparable instructional goals.

The ROI Analysis, for example, provides a preliminary estimate of the costs associated with various delivery options. It does not, however, analyze the feasibility of using alternate delivery options. Media Analysis, on the other hand, determines plausible delivery options without taking costs into consideration. Both feasibility and cost are taken into consideration in the Quick Analysis and Simple Analysis. Simple Analysis, however, takes more factors into consideration in making a recommendation.



Needless to say, the accuracy of the results will improve with additional data, which lead us to the Detailed Analysis. In fact even if you have selected one of the first four options, once you have completed the Wizard, you will advance to the ADVISOR main screen where you can review, edit and supplement your data.

1.5 Managing Files

If the Detailed Analysis button is selected, the main screen appears with buttons representing the various modules. Since it is a new file that is ready to receive and process your information, only the first three buttons are active. The remaining buttons are activated once instructional goals are defined under the Course Analysis module.



The menu bar in the bottom of the screen provides a number of options for managing your files. A brief description of each button is presented below.

Preference button – at the lower left corner of the screen – allows the user to specify how the Tips (online help) and the Menus should be displayed. The Tips offer clarification for each cell, a brief description of available options, for example. A new user may choose to have the Tips automatically appear, while an experienced user may elect to have the Tips displayed on demand. Similarly, the user is given the option of having pop up menus appear automatically or on demand.

You can also simplify and speed the analysis by eliminating delivery options (Intelligent Tutor and Video Conferencing, for example) not supported by your organization or discard modules (Revenue and Time Analysis, for example) that are not relevant to your analysis. In addition, reusable data (i.e., data that does not change from one course to the other) can be saved in a Template file and automatically loaded at the start of each new project. To customize ADVISOR, click on the Advanced button.

Tutor button – provides a quick tour of ADVISOR 3.5 key functions and features.

Overview button – provides a brief description of various modules within ADVISOR 3.5. The content changes in each module, i.e., only information relevant to the module is presented.

Help button – provides a detailed description of key topics. User can search for information by topic or keyword. It is accessible from all screens.

New button – to start a new analysis. When the New button is clicked, all previously entered data is deleted. It does not affect files saved on your hard disk.

Open button – to gain access to previously saved files. To open a file, double click on the file name.

Wizard button – to collect and analyze data using one of the four available Wizards. You may import data from the Wizard into an existing course or start a new analysis by Replacing Existing Course data.

Print button – for printing reports and charts. The print report function is activated if no charts are being displayed on the screen. The user has the option of printing the report with or without the notes (supplementary information included by the user to various cells.)

Save As button – saves the data to a new file name. Enter the name of the file and click save.

Save button – to save new data to an existing analysis (file).

Exit button – to close ADVISOR and return to Windows.

Within each module, the following buttons are also provided to the user.

Add Note button – for adding supplementary information such as reference material, contact person, or assumptions to a cell. Once a note has been added, a yellow corner will mark the corresponding cell for future reference. Furthermore, a yellow square with the word note will appear at the bottom of the screen when a cell with a note has been selected.

Tips button – provides context sensitive online help. It offers clarification for each cell.

Menu button – returns the user to the main screen.

F2 Key – to edit the content of a cell.

1.6 Using ADVISOR - A Quick Overview

ADVISOR is divided into two main categories:

- ◆ Modules that impact the entire course. These include Experience, General Costs, Course Analysis and Course Summary.
- ◆ Modules that impact a specific learning group, such as Knowledge Skills. These include Feasibility Analysis, Development Hours, Training Costs Analysis, Time Analysis, Revenue Analysis, Risk Analysis and Module Summary.



You can select a module by clicking on the corresponding button. A brief overview of the modules is presented.

Experience - The extent to which a delivery method is being used within the organization, can impact its effectiveness as well as the cost of implementing it. The more experience an organization has in the use of a delivery method, the lower the risk – i.e., quality and cost of training can be predicted more accurately – and vice versa. Describe your organization’s experience in this module. You do not have to complete all the cells. The impact is presented under the Risk Analysis module.

General Costs - Variables that impact all delivery options are presented in this module. Simply complete relevant data and click the Menu button.

Course Analysis – In some cases, a hybrid solution (combination of delivery methods) is more effective and economical than a singular solution. In general, the benefits of hybrid solutions increase with the complexity of the course.

List and classify the instructional goals in this module. If the course has varied learning objectives (knowledge and psychomotor skills, for example) then each group should be analyzed separately to determine the most cost-effective delivery method for the group.

Instructional goals in a course may be divided into one of the five following groups: software, knowledge, problem solving, psychomotor and affective. To analyze a group, click on the corresponding button (Knowledge Skills, for example) and complete all relevant modules (i.e., Feasibility Analysis, Development Hours, etc.)

Feasibility Analysis – Based on corporate, training and audience needs, ADVISOR determines which delivery method can be used and the effectiveness of all plausible options. Indicate the requirements for each learning group in this module. You do not have to complete all cells. Plausible delivery methods are presented under the Summary tab and their effectiveness under the Rating tab. To find out why a method has not been recommended or why the effectiveness of a method has been reduced, click on the corresponding [?] button.

Development Hours – Based on the complexity of the content, available technology, experience of development team and quality of existing material, the number of hours required to develop one hour of training is estimated. Define the characteristics of each learning group in this module. You do not have to complete all the cells. An estimate of the effort required to develop one hour of training is presented under the Summary tab.

Training Cost Analysis – The costs of design, development, delivery, maintenance and support of the training program is computed and compared in this module for alternate delivery methods.

For each delivery method, the costs are divided into the following six categories: Trainee, Instructor, Development, Facilities, Maintenance and Hardware. Input the data in the white cells. You can classify the costs as direct (impacts your budget, for example) or indirect (impacts resources or other groups in your organization, for example) by clicking on the [I] or [D] button. The results are presented in the gray cells.

To minimize input, data is carried forward between delivery methods, whenever possible. In some cases, ADVISOR may recommend a value when you click on the [R] button. The recommended value is based on previous entries or industry standards. The results are displayed under the Summary, Annual Cost Charts, and Total Cost Charts tabs.

Time Analysis – In some cases, reducing the overall time required to train employees (i.e., 6 months instead of 9 months, for example) may have a significant impact on the organization's bottom line. This module computes savings or potential revenue that may result from completing the training in a shorter period of time.

Revenue Analysis – Revenue that may result from courses sold or licensed to other organizations is captured in this module. Complete relevant sections, if applicable, and click on the Revenue and Charts tabs to view the results.

Risk Analysis – Organization's experience and readiness, as well as employees and management attitude towards training technology can impact the effectiveness as well as the cost of a delivery option. This module identifies and computes hidden costs inherent in the introduction of new delivery methods.

Module Summary – Direct and indirect costs for each group are compiled in this module. The most economical methods that meet your training needs are presented in descending order and can be viewed by clicking on the Recommendations tab. To find out why a delivery method has not been recommended, click on the corresponding [?] button. Additional details are presented for each method by clicking on the corresponding tabs.

Course Summary – The cost of the entire course is computed in this module by combining plausible delivery options for each learning group. You may define, compute and compare up to six combinations. The results can be viewed by clicking the Summary, Annual Cost Charts and Total Cost Charts tabs.

1.7 Learning ADVISOR

To use ADVISOR, you should know how to perform basic computer and Windows operations. For example, how to start and quit applications, selecting commands and dialog box options. To facilitate the learning process, ADVISOR comes with its own set of on-line tools. These include:

Tutor. All modules have a tutorial session that presents the section's main features. You can start a tutorial by clicking on the Tutor button in the bottom left corner of the screen.

Overview. All modules include a brief description of the section's main functions. You can review the information by clicking on the Overview button in the bottom of the screen.

Context Sensitive Help. A brief one-line description is presented for each cell at the bottom of the screen (above the buttons). Additional details are presented when you click the Tips button.

Help. Detailed description of key topics is included under the Help function. You can search by topic or keyword. The help file is accessible from all screens by clicking on the Help button.

Examples. A sample analysis is also included with ADVISOR. To load the file, click on the Open File button in the main menu and select the “Sample Course” file. You can change any variable, observe the impact on the results and save under a new name.

Technical Support. Please have your serial number ready and call our technical support hotline at (800) 747-4010. You may also fax (514) 745-4011 or E-mail support@bnhexpertsoft.com questions.

1.8 Information for Network Administrators

This section is for network administrators that will be installing ADVISOR on a network server or another shared location, to enable users to run ADVISOR from the network.

The account you use must be operational, and must have read, write, create and delete/erase privileges for the network directories under which ADVISOR will be installed. The workstation should also meet the System Requirements listed earlier.

After the CD-ROM is installed, run the Setup program on the “Network Installation Disk”. In addition, a number of files should be installed on each computer (user) that will be accessing ADVISOR. To install the required files, on each station, run the Setup program on the “Workstation Installation Disk”. This would install the following files under the Windows System directory.

- Mfc40.dll
- Msvcrt40.dll
- Oc30.dll
- Olepro32.dll
- Cfx32.ocx
- Ftpct.ocx
- Nmsckn.dll
- Nmorenu.dll
- Nmftpsn.dll
- Mso97v.dll
- Msv7enu.dll

The number of individuals that can access ADVISOR at the same time is limited by the license agreement. An Access Denied message will appear when the maximum number of concurrent users has been reached.

Chapter 2

Organization/Unit Experience

2.1 Introduction

The experience of the organization/unit in the design, development, management, administration and support of various methods that may be used for the delivery of training may impact the effectiveness of the delivery method as well as the cost of implementing the solution.

Data related to organization/unit experience with alternate delivery methods as well as trainees, management and trainers receptiveness to various delivery options is collected in this section. Since the information is generic (i.e., not related to a specific course), the data in this section can be reused by other courses. An "Import" button is provided at the bottom of the screen to retrieve data from previous courses.

To compensate for the organization/unit lack of experience with some delivery methods, interventions are recommended under the Risk Analysis module (Chapter 10). These include: re-training of development, delivery and support personnel; development of policies, support and administrative procedures; development of a communication plan as well as a change management plan. Costs of introducing proposed interventions – often referred to as "hidden costs" – are also computed under the Risk Analysis module.

2.2 Collecting Data

The Experience module is divided into ten sections. Under the General section describe trainees computer/Internet skills as well as organization's policies and support system. The other nine sections are reserved for specific delivery options, such as instructor-led, self-study and customized CBT/WBT.

The screenshot shows the 'ADVISOR 3.5 - Experience : Technology in Distance Learning' window. It contains the following data:

Organization Name	BNH Expert Software Inc.
User Name	John Smith
Title	Training Manager
Date (day-month-year)	17-07-2000

Trainees

Computer Skills	low
Internet/Intranet Skills	medium

Policies/Procedures

Instructor-led Training	formal
Self-Study Training	informal

Support System

Performance	informal
Technical	formal

General | Instructor-led | Self-Study | Off-the-Shelf | Customized CBT/WBT | Multimedia | EPSS | Conferencing | Simulation

How would you rate the computer skills of individuals to be trained.

Tutor | Overview | Help | Save | Import | Print | Add Note | Tips | Menu

To move between sections, click on the corresponding tab. With the exception of Organization Name, User Name, Title and Date, the response to all other cells should be selected from a menu. To select a response, click on the down arrow, drag the mouse to highlight the required option and release. You do not have to complete all the cells. The recommendations – presented in the Risk Analysis module (Chapter 10) – are based on information provided in this module.

If options for a particular cell do not correspond to your situation, you may add a note to the cell by clicking on the Add Note button on the bottom of the screen.

Chapter 3

General Costs

3.1 Introduction

To maintain consistency and ensure integrity of the analysis, factors that impact all delivery options (i.e., working hours per day, expected life of course, etc.) are specified in this module. The data is carried forwarded to various sections in the Training Cost Analysis module (Chapter 7) and used for computing the cost of training.

3.2 Value of Trainees Time

Time is money. Salaried employees are expected to work a specific number of days in a year – referred to as annual productive days – and in-turn, contribute to the goals/objectives of the organization. The daily cost of an employee to the organization can be computed as follows:

Trainee Annual Salary		\$45,000
Fringe Benefits Factor (30%)	x	1.3
Annual Trainee Cost	=	\$58,500
Annual Productive Days	/	230
Trainee Daily Cost	=	\$ 254.35

Where:

Fringe Benefits Factor covers all overhead expenses including employees' benefits such as medical and dental coverage; organization's contribution to pension and other funds; as well as general operational expenses such as rent, electricity, phone, security, etc. Data on Fringe Benefits Factor may be obtained from personnel or payroll department.

Annual Productive Days is the number of days an average employee works per year. Annual Productive Days is computed by subtracting weekends [104 days], holidays [11 days, for example], vacation [15 days, for example], and sick leave [5 days, for example] from the number of days in a year [365].

When employees are being trained – in addition to tuition fees, travel costs and so forth – the time away from the job, which is measured by the Trainee Daily Cost, should also be considered since employees are not directly contributing to the organization's goals during the training period. This fact does not take away from the importance of training. It simply indicates that delivery options that produce the same results in a shorter period are preferable because they will increase the productivity of employees.

Parameter	Value
Working Hours per Day	7.5
Expected Life of Course [years]	3.0
Number of Trainees [over life of course]	450
Number of Trainees [per year]	150
Trainee Annual Salary	\$45,000
Fringe Benefits Factor	30.0 %
Annual Trainees Costs	\$58,500
Annual Productive Days	230
Trainee Daily Cost	\$254

Number of days an average trainee [employee] works per year.

Tutor Overview Help Save Import Print Add Note Tips Menu

Let us consider two delivery options Instructor-led and Computer Based Training (CBT). If training the above individual on a new software program can be conducted in 5 days using an Instructor-led approach or 3 days using a CBT approach, then from a time perspective the CBT option is more advantageous. Since the average Daily Cost of the individual (\$254.35), we can measure the added value of CBT:

Trainee Daily Cost	\$254.35
Time Saving (5 days – 3 days)	2 days
Productivity Gain	\$508.70

Of course, the recommendations are not based solely on productivity gains. Many factors can also impact the decision and will be discussed in greater details in the upcoming chapters.

Chapter 4

Course Analysis

4.1 Introduction

The instructional goals of some courses (how to use a word processor, for example) have a singular learning objective/outcome (software skills, in this case); while other courses (how to repair a piece of equipment, for example) have multiple learning objectives/outcomes (knowledge, comprehension and psychomotor skills). If all instructional goals in a course have the same learning objective, then the course can be analyzed as a unit to determine the most cost effective method for the delivery the training. If, however, the course has multiple learning objectives (knowledge and psychomotor skills, for example), then a hybrid solution (combination of delivery methods) may be more effective and economical than a singular delivery option. In this case, instructional goals with similar learning objectives should be divided into groups and analyzed separately to determine the most cost effective delivery method for each group – i.e., the right blend of delivery methods.

In the Course Analysis module, the course is divided into homogenous groups – based on learning objectives/outcomes. For the purpose of this analysis, the learning objectives/outcomes are divided into five main categories. These are:

- ◆ Software Skills – ability to use a software application or operate a system.
- ◆ Knowledge/Comprehension/Application Skills – a broad category that includes ability to recall, recognize, understand, translate and interpret information.
- ◆ Problem-Solving Skills – ability to compare, contrast and break down a problem in order to arrive at a solution.
- ◆ Psychomotor Skills – ability to perform a physical task.
- ◆ Affective/Attitude Skills – change the attitude, behavior, preferences and/or value systems of personnel.

4.2 Divide Course into Uniform Modules

Under the Instructional Goals tab, list the instructional goals in the order in which there are being taught, classify the learning objective/outcome of each goal and estimate the time required to teach each goal in an instructor-led format. A course may be divided into a maximum of 999 goals.

Three examples are provided to help you recognize the learning objectives/ outcomes within your course.

Example #1 - MS Word

A course designed to teach MS Word may have the following instructional goals:

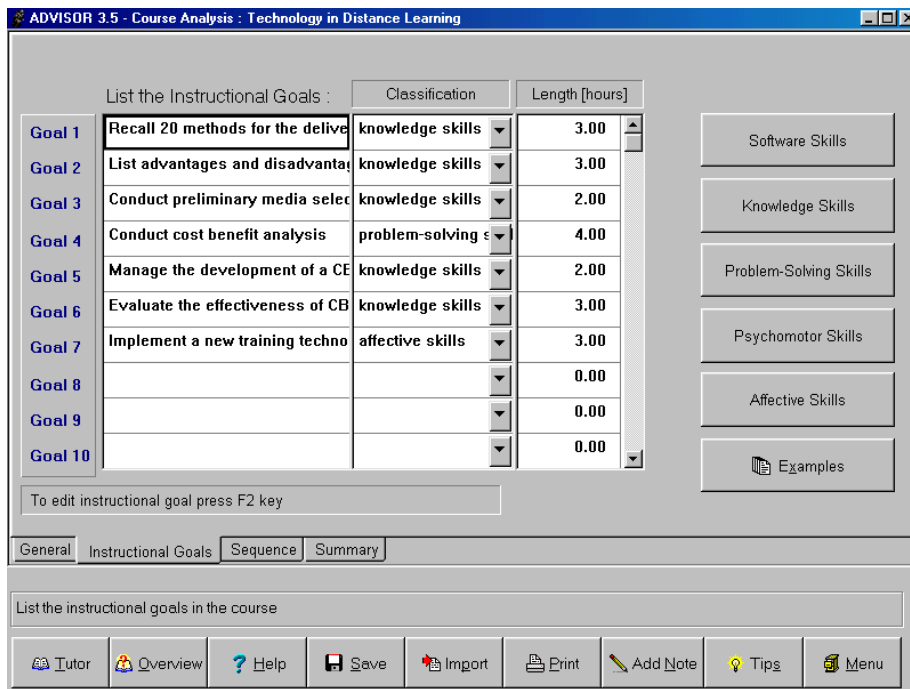
Goal 1: Personnel will be able to install MS Word.

Goal 2: Personnel will be able to type and format a letter.

Goal 3: Personnel will be able to type and format a report.

Goal 4: Personnel will be able to conduct a mail merge.

Goal 5: Personnel will be able to import charts and figures into a document.



Example #2 - Interview Skills

A course designed to teach interview skills may have the following instructional goals:

Goal 1: Personnel will be able to list the benefits of using proper interviewing skills.

Goal 2: Personnel will be able to describe and explain the five communication techniques.

Goal 3: Personnel will be able to use the five communication techniques when conducting an interview.

Example #3 - Needs Analysis

A course designed to teach needs analysis, may have the following instructional goals:

Goal 1: Personnel will be able to explain the purpose of needs analysis.

Goal 2: Personnel will be able to explain the advantages of conducting a needs analysis.

Goal 3: Personnel will be able to describe and explain the steps in a needs analysis.

Goal 4: Personnel will be able to successfully conduct needs analysis.

Next, classify the instructional goals according to their primary learning objective/outcome. A brief description of the five main categories, follows:

- ◆ **Software Skills.** Refers to the ability of an individual to use a software application, an operating system, a legacy system or an information management system effectively and efficiently. Learning a software application requires the use of both cognitive and psychomotor skills.

Select software skills as a primary learning outcome/objective if the purpose of the instructional goal is to provide personnel with the knowledge, comprehension and skills to use a software application and/or operating system. For example:

- Personnel will be able to type and format a letter.
- Personnel will be able to import charts into an MS Word document.

- ◆ **Knowledge Skills.** It is a broad category that covers knowledge, comprehension and application. It refers to the individual's ability to:
 - Recall and recognize information
 - Understand, translate and interpret information
 - Use learned material in specific instances

Select knowledge skills as a primary learning objective/outcome for an instructional goal if:

- Purpose of the instructional goal is to enable personnel to name the parts of an object, point out a certain object or state a definition.
- Purpose of the instructional goal is to classify an object into a category or contrast two objects.
- Purpose of the instructional goal is to apply theoretical knowledge, perform a task or use a particular set of rules and/or procedures.

For example:

- Personnel will be able to explain and describe the rules and procedures for lodging a complaint within the department.

-
- ◆ **Problem-Solving Skills.** Refers to the ability of individuals to compare, contrast and break down a problem in order to arrive at a solution. Select problem solving skills as a primary learning outcome/objective if the purpose of the instructional goal is to provide personnel with the skills to select and organize alternatives, and derive solutions to a problem. For example:
 - Personnel will be able to choose the most effective instructional strategy for specific learning outcomes.
 - Personnel will be able to solve mathematical formula by combining previous learned rules.

 - ◆ **Psychomotor Skills.** Are learned capabilities whose outcomes are demonstrated through speed, accuracy and quality of the performed task. In other words, psychomotor skills refer to a person's ability to perform a physical task; a task that requires physical exertion or manipulation of an object; the ability to do something.

Select psychomotor skills as a primary learning objective/outcome if the purpose of the instructional goal is to provide personnel with "practical skills" or "motor skills" that require perception, decision and action to perform the task. For example:

 - Personnel will be able to climb a telephone pole.
 - Personnel will be able to repair a flat tire.

 - ◆ **Affective/Attitude Skills.** Refers to a person's personal beliefs and/or preferences towards an object, situation or person. Select affective skills as a primary learning outcome/objective if the purpose of the instructional goal is to change, in some way, the attitudes, behavior, preferences and/or value systems of personnel. For example:
 - Personnel will demonstrate positive attitudes and behaviors towards the new work procedures.
 - Personnel will be more sensitive to colleagues with varied cultural backgrounds.

Note: If an instructional goal has more than one primary learning objective/ outcome, then the instructional goal should be divided in two.

4.3 One or More Analysis

A hybrid solution (blend of delivery methods) may be more effective and economical – for courses with multiple learning objectives/outcomes – than a singular delivery option. To assist you in exploring all possible combinations, instructional goals with similar objectives/outcomes are grouped under the Summary tab under the five main categories.

Next (Chapters 5 to 11), we will show you how to analyze each group of instructional goals to determine the most cost effective delivery option. In Chapter 12, we combine the results from each learning group to determine the right blend of delivery methods.

Chapter 5

Feasibility Analysis

5.1 Introduction

With all the data in place from the previous modules, ADVISOR will show its real strength by providing a framework to catalog and manipulate the many variables impacting upon the media selection. From this point on, the analysis focuses on one group on instructional goals taken at a time.

5.2 Objectives

In this module, ADVISOR analyzes corporate, training and learning needs to determine:

- ◆ Methods [i.e., instructor-led, print, tapes, computer based training (CBT), web based training (WBT), multimedia, electronic performance support tools (EPSS), audio/computer/video conferencing or Internet Simulated Classroom] that can be used for the delivery of training.
- ◆ Effectiveness of plausible delivery options; i.e., ability of delivery options in meeting stated needs.
- ◆ Minimum requirements that should be met by each delivery option.
- ◆ Course supplements (computer based testing, electronic performance support systems, Internet or communication plan) that can improve the effectiveness of delivery methods.

The main objectives of the Feasibility Analysis are to eliminate options that clearly do not meet your needs, rate the effectiveness of plausible delivery options and highlight factors that impact the effectiveness of each option. Once you have narrowed down your selection, you can compute the costs of each alternative – using the Training Cost Analysis, Revenue Analysis, Time Analysis, and Risk Analysis modules – and determine the most economical method that meets your training needs.

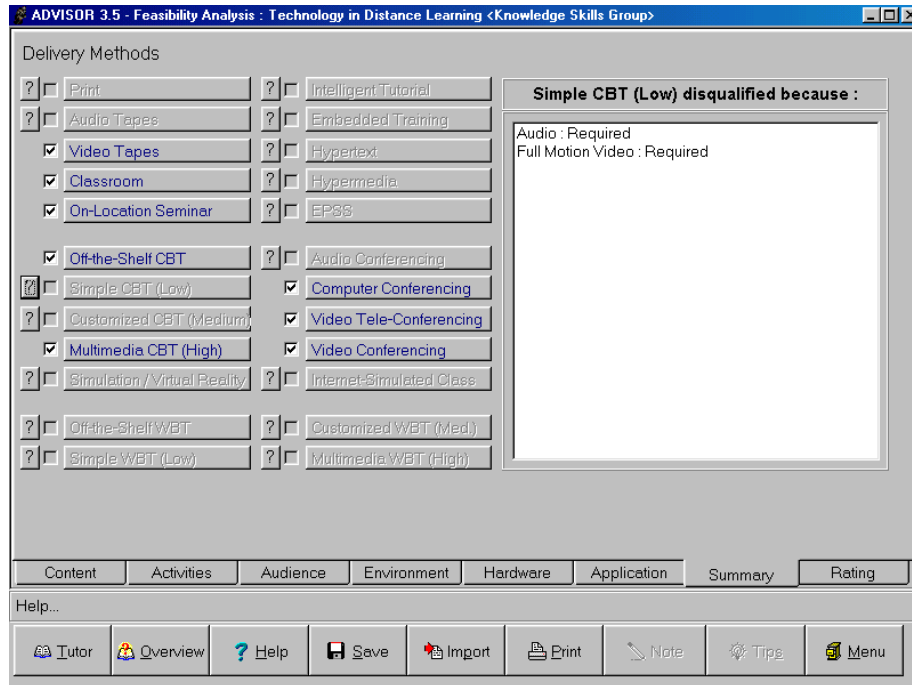
5.3 Analysis and Results

First thing to keep in mind is that we are dealing with one learning group at a time – Knowledge Skills, for example. If all the instructional goals in a course have similar learning objectives – then the needs of the course and the learning group are similar. However, if a course has multiple learning objectives (Knowledge and Psychomotor Skill, for example) then the needs of each learning group may be different. For example, Psychomotor Skills Group may require hands on exercises, while Knowledge Skills Group may not. Skill based testing may be required for the Knowledge Group and a performance based test for the Psychomotor Group, and so.

The group as well as course title are displayed on the top of the screen. A series of questions (cells) are presented in a multiple-choice format. Answers should be based on required (as opposed to desired) needs. Clarification for each question as well as the impact of the response on the results can be viewed by clicking on the Tips button. To select a choice, click the arrow down button to display the options, drag the mouse to highlight the required option and release. You do not have to complete all the cells. Recommendations are based on information provided.

Once you have responded to the questions under Content, Activities, Audience, Environment, Hardware and Application tabs, click on the Summary tab to view the results. Plausible delivery options are highlighted, while methods that do not meet key criteria (not recommended) are dimmed.

To view the definition of a plausible delivery option, click on the corresponding button. To find out why a method should not be considered, click on the [?] button. The reasons – based on information provided – are displayed in the window to the right. To view the question (cell), double click on the corresponding response (reason).



ADVISOR also rates the effectiveness of plausible delivery options. The results are presented under the Rating tab. A 100% rating indicates a perfect match, i.e., the delivery option meets all corporate, training and learning needs. A 0% rating implies that the delivery method does not meet a critical need and should not be considered. To find out why the effectiveness (rating) of a delivery method has been reduced, click on the [?] button. The reasons – based on information provided – are presented in descending order – most to least critical – in the window to the right. To view the question (cell), double click on the corresponding response (reason).

ADVISOR 3.5 - Feasibility Analysis - Technology in Distance Learning <Knowledge Skills Group>

Delivery Option	Effectiveness Rating
Off-the-Shelf CBT	83%
Multimedia CBT	82%
Video Tapes	78%
Minimum Recommended Score: 77%	
On-Location Seminar	68%
Video Conferencing	68%
Classroom	64%
Video-Tele Conferencing	63%
Computer Conferencing	58%
Embedded Training	0%
Simulation/Virtual Reality	0%
EPSS	0%
Hypertext	0%
Customized CBT	0%
Customized WBT	0%
Hypermedia	0%
Simple WBT	0%
Simple CBT	0%
Print	0%
Intelligent Tutorial	0%
Audio Tapes	0%
Off-the-Shelf WBT	0%
Multimedia WBT	0%
Audio Conferencing	0%
Internet-Simulated Classroom	0%

On-Location Seminar effectiveness reduced because:

- Scheduling: >6 months
- Consistency in Delivery: Critical
- Value of Trainees Time: Very high
- Location: Widely scattered
- Instructors/SME Availability: Short
- Referred To: Regularly

Buttons: Edit Score... Supplements...

Navigation: Content, Activities, Audience, Environment, Hardware, Application, Summary, Rating

Help... Tutor, Overview, Help, Save, Import, Print, Note, Tips, Menu

A Minimum Score – cut off-point – is also recommended. Its value is based on the impact/consequences of the course – Application tab. The greater the consequences of applying learned material incorrectly – flying an airplane, for example, the higher the score. ADVISOR does not consider delivery options that fall below the Minimum Recommended Score. You may edit the Minimum Recommended Score by clicking on the Edit Score button and following the instructions on the screen.

ADVISOR 3.5 - Feasibility Analysis : Technology in Distance Learning <Knowledge Skills Group>

Method	Score
Off-the-Shelf CBT	83%
Multimedia CBT	82%
Video Tapes	78%
Minimum Recommended Score : 77%	
On-location Seminar	68%
Video Conferencing	68%
Classroom	64%
Video-Tele Conferencing	63%
Computer Conferencing	58%
Embedded Training	0%
Simulation/Virtual Reality	0%
EPSS	0%
Hypertext	0%
Customized CBT	0%
Customized WBT	0%
Hypermedia	0%
Simple WBT	0%
Simple CBT	0%
Print	0%
Intelligent Tutorial	0%
Audio Tapes	0%
Off-the-Shelf WBT	0%
Multimedia WBT	0%
Audio Conferencing	0%
Internet-Simulated Classroom	0%

On-Location Seminar effectiveness reduced because:

Scheduling : >6 months
 Consistency in Delivery : Critical
 Value of Trainees Time : Very high
 Location : Widely scattered
 Instructors/SME Availability : Short
 Referred To : Regularly

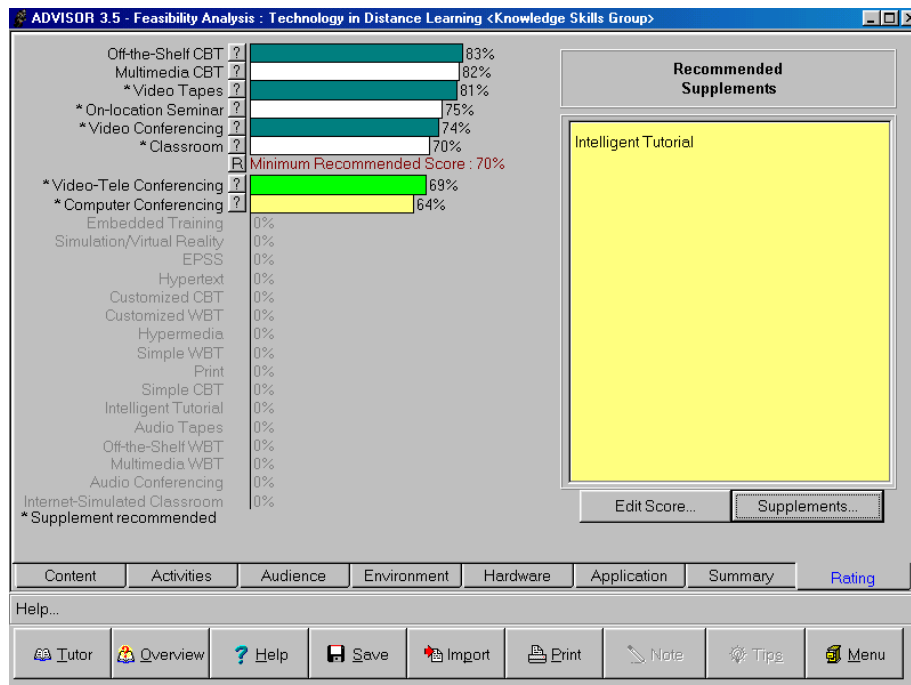
Minimum Score [%]

Default Score

Content Activities Audience Environment Hardware Application Summary Rating

Help... Tutor Overview Help Save Import Print Note Tips Menu

The effectiveness of some delivery methods could be enhanced through supplements, such as Performance Support Tools, Computer Based Testing, Internet, Communication Plan and others. To determine if supplements can enhance the effectiveness of a delivery option, click the Supplements button, select supplement(s) that can be offered by your organization and click ok. ADVISOR will readjust the effectiveness (rating) of the delivery methods, if applicable, identifies methods affected by the supplement – by placing an asterisk (*) beside the title, and displays the recommended supplement(s) in the window to the right.



5.4 Interpreting Results

The Feasibility Analysis provides the reasons behind the decisions – based on information provided by the user. For example, Audio Tapes will not be recommended for courses that require full motion video. You may, either agree with the recommendations, change your response to the full motion video question (as an example), or override the ADVISOR recommendations in the Training Cost Analysis, Revenue Analysis, Time Analysis, Risk Analysis and Course Summary modules. If you choose to override the ADVISOR recommendations, a note should be added to explain why a method disqualified by ADVISOR should be considered.

Similarly, when examining the effectiveness of various delivery methods, keep in mind that ADVISOR presents the reasons – based on data provided by the user. That is, you may use any delivery method as long as you can address the issues that may impact their effectiveness. For example, you may supplement a self-based delivery option (such as print, CBT or WBT) with an online chat sessions to facilitate guided discussions and role-play.

Chapter 6

Development Hours

6.1 Introduction

Analyzes factors related to course content, availability of technology, experience of development team and quality of existing material to determine the number of hours, and in-turn cost, required to develop one hour to training.

Development teams with limited experience, for example, should expect longer development time. In addition, the development effort will increase as the complexity of the material, learning objectives, and instructional design strategies increase. The frequency and complexity of graphics, animation, simulations, audio and video will also impact the development effort.

To estimate the time required for developing one hour of training, the impact of each factor on the development effort should be classified as low, medium or high. If you are using this module for the first time, you can increase the accuracy of the estimate by referring to the help provided for each question (cell) by clicking on the "Tips" button. Keep in mind that you do not have to answer all questions. Estimates are based on the information provided.

The results are presented under the Summary tab as a ratio – development hours per hour. Based on these ratios, an estimate of the total time and cost required for developing all instructional goals in a learning group (Knowledge Skills, for example), are computed under Development tabs in the Training Cost Analysis module. You may edit the estimated development time and costs, if required.

6.2 Impact of Course Content

As with the Feasibility Analysis, keep in mind that we are dealing with one learning group – Psychomotor Skills, for example – at a time. Under the first tab called Course, you can input valuable indicators about the complexity of the training material, instructional strategies, testing requirements, as well as the need for graphics, animation, audio and video. You should not be concerned about the delivery medium – ADVISOR will estimate their impact based on industry averages.

ADVISOR 3.5 - Development Hours : Technology in Distance Learning <Knowledge Skills Group>

Complexity of Material	low	Creativity Desired or Required	medium
Learning Objectives	low	Complexity/Frequency Graphics	low
Instructional Design Strategies	medium	Complexity/Frequency Animation	low
Frequency of Interactivity	high	Testing Requirements	low
Conditional Branching	low	Standards, Quality and Stability	low
Complexity of Response Analysis	low	Audio Integration	low
Nature and Depth of Feedback	low	Video Integration	medium
Nature and Depth of Testing	low	Computer Managed Instruction	low

Course | Technology | Experience | Quality | Summary

How would you rate the complexity of instructional design strategies? Note

Tutor | Overview | Help | Save | Import | Print | Edit Note | Tips | Menu

6.3 Impact of Technology

The second tab relates to technology-based solutions. In general, the closer the match between development tools and course requirements, the shorter the development effort. A simple authoring system with limited capabilities, for example, will require considerable programming time to produce complex simulations and animation. The reverse is also true, using an authoring [or programming] language to produce a course with simple interactions and limited branching will unnecessarily complicate the project.

6.4 Impact of Experience

The third tab deals with the development and management teams experience in various delivery methods. As expected, the development effort is highly dependent on the experience of the team. The more experience you have the quicker the development cycle. The Recommend [R] button retrieves and displays relevant data provided in the Experience module. If required, you may override these answers.

6.5 Impact of Quality

Questions under the fourth tab deal with the quality of existing material and the availability of standards that could facilitate the development effort. Clearly documented standards or guidelines for user interface, course presentation and interaction, for example, will reduce the need for experimentation and in-turn reduce the development effort.

6.6 Estimating Development Time

The estimates provided by ADVISOR are based on a statistical analysis of hundreds of courses developed by various organizations. The minimum and maximum ratios – number of hours required to develop one hour of training – for various delivery methods are presented below:

Delivery Method	Minimum Hour per Hour	Maximum Hours per Hour
Instructor-led	10	150
Print	20	200
Audio Tapes	20	200
Video Tapes	50	500
CBT/EPSS/WBT	50	700
Audio/Computer/Video Conferencing	10	250
Simulation/Virtual Reality	200	2,000
Internet Simulated Classroom	50	250

The Minimum Development Ratio is normally achieved when dealing with a simple topic, developed by experienced personnel, with good knowledge of the content and available tools – i.e., best-case scenario.

The Maximum Development Ratio is required when dealing with complex (abstract) topic, and developers have little knowledge of the field, minimal experience with the delivery method and development tools – i.e., worst-case scenario.

Although the process used in estimating the development time is not an exact science [i.e., estimates may be + or - 15%], it is adequate for computing and comparing the costs of alternate delivery methods. Moreover, the accuracy of this model will improve as you gain a better understanding of the factors and how they relate to your organization (i.e., comparing estimates provided by ADVISOR with data collected in real projects).

The screenshot shows the ADVISOR 3.5 software interface. The title bar reads "ADVISOR 3.5 - Development Hours : Technology in Distance Learning <Knowledge Skills Group>". The main window displays a table with the following data:

Factors that contribute to:	Instructor-led	Print	Audio Tapes	Video Tapes	CBT/EPSS/WBT
Lower Development Cost	12	20	20	20	21
Moderate Development Cost	6	6	6	6	6
Higher Development Cost	0	0	0	0	0
Not Applicable	0	0	0	0	0
Development Hours per Hour	26	39	37	83	130

Below the table, there are tabs for "Course", "Technology", "Experience", "Quality", and "Summary". At the bottom, there is a text field labeled "Number of hours to develop one hour of training." and a toolbar with icons for Tutor, Overview, Help, Save, Import, Print, Add Note, Tips, and Menu.

Chapter 7

Training Cost Analysis

7.1 Introduction

The costs of design, development, delivery, maintenance and support of the training program is computed in the Training Cost Analysis module for alternate delivery options. The module is divided into twelve lower tabs that correspond to the eight types of delivery methods as well as a General, Summary, Annual Cost Charts and Total Cost Charts. The twenty-four delivery methods considered in the Feasibility Analysis are grouped under the eight delivery types, as follows:

- | | |
|--------------|--|
| Classroom | ➤ Instructor-led delivered in a central location |
| On-Location | ➤ Instructor-led delivered on-site |
| Print | ➤ Self-study print based material |
| Tapes | ➤ Audio Tapes |
| | ➤ Video Tapes |
| CBT | ➤ Off the Shelf CBT |
| | ➤ Simple CBT |
| | ➤ Customized CBT |
| | ➤ Multimedia CBT |
| | ➤ Intelligent Tutorial |
| | ➤ Embedded Training |
| | ➤ Hypertext |
| | ➤ Hypermedia |
| | ➤ EPSS |
| | ➤ Off the Shelf WBT |
| | ➤ Simple WBT |
| | ➤ Customized WBT |
| | ➤ Multimedia WBT |
| Conferencing | ➤ Audio Conferencing |
| | ➤ Computer and Internet Computer Conferencing |
| | ➤ Video-Tele Conferencing |
| | ➤ Video and Internet Video Conferencing |
| Simulation | ➤ Simulation and Virtual Reality |
| Internet | ➤ Internet Simulated Classroom |

Only plausible delivery options identified in the Feasibility Analysis Module will be active (tabs displayed). You may also choose to include or exclude options – under the General tab.

Working Hours per Day	7.5
Expected Life of Course [years]	3.0
Revision [per year]	10.0 %
Number of Trainees [over life of course]	450
Number of Trainees [per year]	150

Select delivery methods for comparison

- Classroom
- On-location
- Print *
- Tapes
- CBT/EPSS/WBT
- Conferencing
- Simulation *
- Internet-Simulated Classroom *

Base for Comparison: Classroom

* Delivery method did not meet minimum requirements in Feasibility Analysis

General | Classroom | On-location | Tapes | CBT | Conferencing | Summary | Annual Cost Charts | Total Cost Charts

Help...

Tutor | Overview | Help | Save | Import | Export | Print | Note | Tips | Menu

The cost of a training program is critical for making a decision. Once you have identified plausible delivery options under the Feasibility Analysis, then cost will determine the most economical option. The Training Cost Analysis module does not take into consideration hidden costs – which are computed separately under Time and Risk Analysis – nor potential income, which is estimated under Revenue Analysis.

In addition to helping you select the most economical delivery option, the Training Cost Analysis module provides insight on how the funds will be spent – i.e., up-front funding required to develop the course material and purchase necessary hardware to run the course, as well as annual reoccurring costs. This in-turn will assist you in preparing your budget. Moreover, you can further optimize your budget by evaluating the impact of various factors (number of trainees per class, for example) on the cost.

For demonstrating all features of the Training Cost Analysis module, we will assume that all eight types of delivery methods may be used. In reality, it is unlikely that all delivery options would be suited for a single learning group.

7.2 General Overview

Once again you should keep in mind that the analysis is conducted for a single learning group at a time, Knowledge Skills Group, for example. Data provided in earlier modules including General Costs, Course Analysis, Feasibility Analysis and Development Hours are automatically transferred to the Training Cost Analysis module.

The costs of a training solution – regardless of delivery option – are divided into eight subcategories (upper tabs). These are Basic, Trainee, Instructor, Development, Facilities, Maintenance, Hardware and Summary. As you progress through these tabs it is conceivable that some costs will not apply to the learning group. In this case, the information that is requested should be ignored (i.e., no input is required).

To speed the analysis and minimize errors some cells – Average Daily Cost for Developer for example – are linked to each other. That is, by default, the data is transferred from one delivery method to the other. You may override these values or restore the value provided in an earlier entry by clicking the recommend [R] button. In other cases – Annual Productive Days, for example – the [R] button recommends values based on industry averages.

Working Hours per Day	7.5
Expected Life of Course [years]	3.0
Number of Trainees [over life of course]	450
Number of Trainees [per year]	150
Trainee Annual Salary	\$45,000
Fringe Benefits Factor	x 30.0 %
Annual Trainees Costs	= \$58,500
Annual Productive Days	/ 230
Trainee Daily Cost	= \$254

How many hours does a full time employee work per day?

Tutor Overview Help Save Import Print Add Note Tips Menu

As in previous modules, data can only be entered in active (white) cells. Data from previous entries or results are presented in shaded (gray) cells. To change the value in a shaded (gray) cell – Number of Trainees per year, for example – you would have to edit the original entry in General Costs or the cells used to compute this value (Expected life of Course or Number of Trainees over Life of Course). We will now examine each component of the Training Cost Analysis module in greater detail.

7.3 General Factors

Factors that impact all delivery options are presented under the General tab. Some factors, including Working Hours per Day, Expected Life of Course and Number of Trainees, were specified in the General Costs module.

Working Hours per Day	7.5
Expected Life of Course [years]	3.0
Revision [per year]	10.0 %
Number of Trainees [over life of course]	450
Number of Trainees [per year]	150

Select delivery methods for comparison

Classroom
 CBT/EPSS/WBT
 On-location
 Conferencing
 Print *
 Simulation *
 Tapes
 Internet-Simulated Classroom *

Base for Comparison: Print

* Delivery method did not meet minimum requirements in Feasibility Analysis

Although a course may have a life span of three years, the content may have to be revised or updated during this period. The percentage of the content that is expected to change each year should be estimated (10%, for example) and taken into consideration, since its impact on the cost of each delivery option will vary. The cost of revising 10% of a computer based training course will be substantially higher than an instructor-led course, for example.

Next, select delivery options that you would wish to cost. An asterisk (*) is used to indicate that a delivery method – such as Print, Simulation and Internet-Simulated Classroom in the present example – did not meet the minimum requirements specified in the Feasibility Analysis. This implies that although you may compute the costs of any delivery option, ADVISOR will not recommend a delivery method that does meet the requirements set in the Feasibility Analysis.

Another factor that will impact the results is the delivery method used as a Base for Comparison. In other words, what are we trying to measure? If, for example, training is presently delivered by an instructor at headquarters (i.e., Classroom) and we want to estimate savings, if any, that may result from delivering the course in a computer based or conferencing format, then Classroom should be used as a Base for Comparison. If on the other hand CBT is the preferred delivery option and we are considering Internet-Simulated Classroom as an alternative, then CBT should be used as a Base for Comparison. It should be noted that this factor does not impact the costs of alternate delivery option. It is primarily used to compute savings, if any, return on investment (ROI) and break-even point. In general, method presently used for the delivery of training – or preferred delivery option – should be specified as a Base for Comparison.

Moreover, if the number of trainees that do not successfully complete the course is significant, their impact on the training costs can be taken into consideration by clicking on the Attrition tab on the top. A 10% attrition rate, for example, implies that the number of individuals to be trained or re-trained will have to be increased by 10% to meet the organization's needs.

If our objective is to successfully train 250 individuals per year, for example, a 10 % attrition rate implies that 25 ($250 \times 10 / 100$) individuals may drop, fail the course or have to be re-trained. This implies that the number of trainees per year would have to be increased by 25 to meet our goal. Of course, the higher the attrition rate, the more resources – such as instructors, facilities, etc. – are required to meet the demand and the higher the cost.

7.4 Classroom (Instructor-led) Training

As previously indicated, the costs of all delivery options are divided into eight subcategories (upper tabs). These are Basic, Trainee, Instructor, Development, Facilities, Maintenance, Hardware and Summary. Although Sections 7.4.1 to 7.4.8 examine the costs of the Instructor-led (Classroom) delivery method, the same methodology is used to compute the costs of other delivery options.

7.4.1 Basic Factors

The user will be required to enter information related to the instructor preparation time, student/instructor ratio and travel time. Based on input, ADVISOR computes and displays relevant information in the gray cells.

Every cell has a Tip to either guide or inform the user. Take advantage of them. In the main screen you can use the Preferences button to leave the Tips on.

7.4.2 Trainee Related Costs

Make use of this tab to efficiently obtain the total annual training costs associated with trainees. Trainee Annual Salary, Fringe Benefits Factor and Annual Productive Days are retrieved from the General Costs module. To obtain support in completing other cells refer to the Tips. From time to time, the user must decide if the cost pertaining to a particular cell is direct (i.e., impacts budget) or indirect (i.e., impacts resources) by selecting either "D" or "I". The Daily, Lost Opportunity, Per Diem, Travel and Miscellaneous Costs are a case in point. The Tip for Lost Opportunity Costs provides extensive background on how to estimate this value.

ADVISOR 3.5 - Training Cost Analysis : Technology in Distance Learning <Knowledge Skills Group>

Basic | Trainee | Instructor | Development | Facilities | Maintenance | Hardware | Summary

Trainee Annual Salary		\$45,000	Class Length [days]	2.7
Fringe Benefits Factor	x	30.0 %	Total # of Trainees [per year]	165
Annual Trainees Costs	=	\$58,500	Annual Trainees Costs	
Annual Productive Days	/	230	. Salary	\$113,157
Trainee Daily Cost	=	\$254	. Lost Opportunity	+ \$111,375
Lost Opportunity Costs		\$250	. Per Diem	+ \$46,200
Trainee Per Diem		\$150	. Travel	+ \$82,500
Trainee Travel Costs		\$1,000	Miscellaneous Costs	+ \$10,000
			Total Trainee Costs [per year]	= \$363,232

General | Classroom | On-location | Print | Tapes | CBT | Conferencing | Simulation | Internet | Summary | Annual Cost (< >)

Average annual salary of trainees.

Tutor | Overview | Help | Save | Import | Export | Print | Add Note | Tips | Menu

For reference, method used to compute Annual Trainees Costs will be presented.

- Salary – refers to the time trainees spend in training course (including travel). In other words lost productivity. It is computed because alternate delivery options may not require the same amount to time to complete. That is, delivery options that allow trainees to complete the training in a shorter period will increase productivity.

Trainee Daily Cost		\$254
Average Class Length (including travel)	x	2.7
Total Number of Trainees per year (including attrition)	x	165
Annual Trainees Costs – Salaries		\$113,157

- Lost Opportunity – in addition to lost productivity, organization may incur additional costs, such as hiring temporary personnel to perform the tasks of an employee on a training course. Since Lost Opportunity costs are time sensitive, delivery options that allow trainees to complete the training in a shorter period will result in reduced lost opportunity costs.

Lost Opportunity Costs		\$250
Average Class Length (including travel)	x	2.7
Total Number of Trainees per year (including attrition)	x	165
Annual Trainees Costs – Salaries		\$111,375

- Per Diem Costs – refers to reimbursable expenses for lodging, meals etc. Annual costs are computed as follows:

Trainee Per Diem [per day]		\$150
Class Length (1.73 days) plus travel (2 days)	x	3.73
Number of Trainees per year that travel (165 x 50%)	x	82.50
Annual Trainees Costs – Salaries		\$46,200

- Travel Costs – refers to roundtrip air, bus or train fare or local public transportation costs. Annual costs are computed as follows:

Trainee Travel Costs [per individual]		\$1,000
Number of Trainees per year that travel (165 x 50%)	x	82.50
Annual Trainees Costs – Salaries		\$82,500

- Total Annual Trainee Costs are computed as follows:

Salary	+	\$113,157
Lost Opportunity	+	\$111,375
Per Diem	+	\$ 46,200
Travel	+	\$ 82,500
Miscellaneous	+	\$ 10,000
Annual Trainees Costs – Salaries		\$363,232

7.4.3 Instructor Related Costs

After working through the Trainee screen, you will find that the information required to determine the Instructor Costs is very similar. In fact there is only one extra item relating to the Consulting Fees per class. Remember to refer to the Tips if you require assistance with filling any cells.

7.4.4 Development Costs

An individual or a team may be required to develop the training material. In this screen, Total Personnel Costs is determined by utilizing the Working Hours per Day from the General tab and Module Length from the Basic tab, in conjunction with the Development Hours per Hour ratio – estimated in the Development Hours module. Total Personnel Costs is computed as follows:

Development Hours [per hour]		26
Module Length	x	13
Working Hours per day	/	7.5
Total Development Time [days]	=	45
Average Daily Cost for Developer	x	\$500
Total Personnel Costs		\$22,500

Finally, a decision must be made as to whether this cost is direct or indirect. This can be done by clicking on the “D” / “I” box or choosing between the In-house / Consultant option. The Total Personnel Cost is then carried over to the top of the next column and combined with production and evaluation costs to generate the Total Development Costs.

7.4.5 Facilities Costs

The cost for space is computed by allocating a percentage of the training facility's annual maintenance and up keeping costs to the course. In-turn, the percentage is based on how often the training facility is used by the course. If additional space must be rented that, can also be figured in.

7.4.6 Maintenance Costs

Now that you are fairly well acquainted with the completion of various tabs you will discover that the required Maintenance data is easily entered. Basically, the Total Maintenance Cost is the summation of Administrative, Material and Revision costs. The first two costs can be treated as either direct or indirect, but the revision costs follows the development. Note that the Clerical title was obtained by clicking on the Select heading. A selection can be made for up to five different administrative individuals and each time you can refill the cells to account for their compensation. The horizontal scroll bar will allow you to view all of these entries, and the overall administrative costs will be the sum of their costs.

Administrative		Clerical	Consumable Material	
Annual Salary	R	\$25,000	Module Material Costs [per trainee]	R \$10.0
Fringe Benefits Factor	R x	30.0 %	Number of Trainees [per year]	x 165
Annual Costs	=	\$32,500	Total Module Material Costs	D = \$1,650
Productive Days	R /	230	Revision	
Daily Cost	=	\$141	Development Costs	\$32,500
Days on Project	R x	22	Revision Factor [per year]	x 10.0 %
Total Costs	=	\$3,102	Subtotal Revision Costs [per year]	= \$3,250
Administrative Costs	I	\$3,102	Miscellaneous Costs	D R + \$0
			Total Revision Costs [per year]	= \$3,250
			Total Maintenance Costs	\$8,002

General Classroom On-location Print Tapes CBT Conferencing Simulation Internet Summary Annual Cost

Average annual salary for administrative personnel.

Tutor Overview Help Save Import Export Print Add Note Tips Menu

7.4.7 Hardware Costs

The Hardware tab can be used to account for special equipment required by the course or remodeling. Hardware Costs is amortized over the life of the equipment. As with other tabs, the cost must be labeled as direct or indirect

7.4.8 Summary - Total Training Costs

Expenses from each of the six sections that contribute to the Classroom delivery option are concisely arranged in the Summary. Moreover, the costs are compared to the delivery method specified in Base for Comparison under the General tab, Print in this case. Direct as well as indirect savings that may result from using instructor-led (Classroom) instead of Print to deliver the training are also computed. In the example shown below, the Instructor-led delivery option is more expensive than a Print based delivery option. As a result, Total Savings (\$198,090) is shown in parentheses to indicate a loss.

ADVISOR 3.5 - Training Cost Analysis : Technology in Distance Learning <Knowledge Skills Group>

Basic | Trainee | Instructor | Development | Facilities | Maintenance | Hardware | Summary

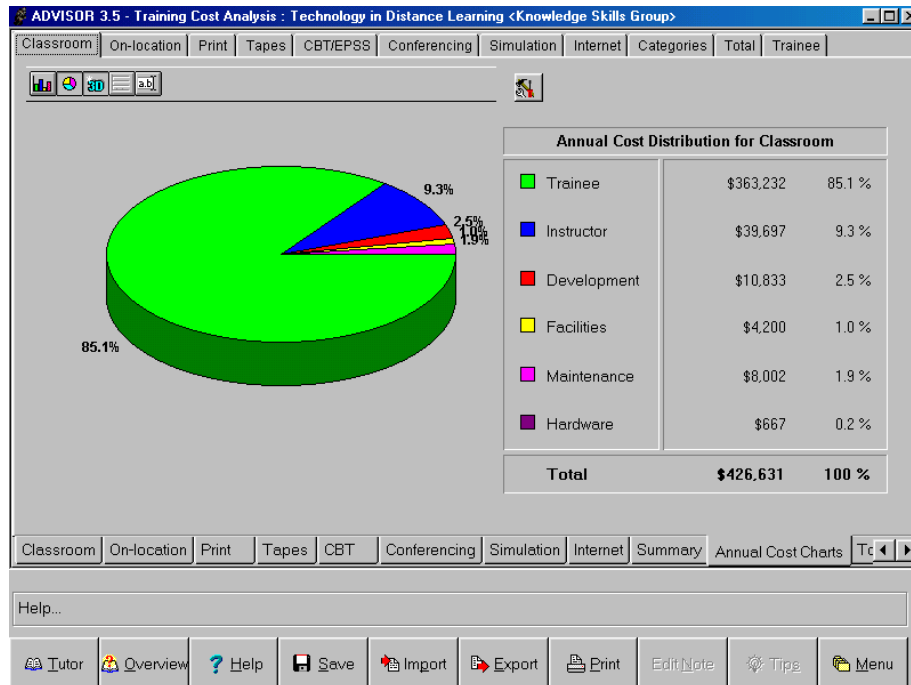
	Costs per year		Savings per year		
	Print	Classroom	Direct	Indirect	Total
Trainees	\$186,636	\$363,232	(\$126,700)	(\$49,896)	(\$176,596)
Instructors	\$13,621	\$39,697	(\$11,107)	(\$14,969)	(\$26,076)
Development	\$16,833	\$10,833	(\$5)	\$6,005	\$6,000
Facilities	\$0	\$4,200	(\$2,200)	(\$2,000)	(\$4,200)
Maintenance	\$11,452	\$8,002	\$1,648	\$1,801	\$3,449
Hardware	\$0	\$667	(\$667)	\$0	(\$667)
Total	\$228,542	\$426,631	(\$139,031)	(\$59,059)	(\$198,090)
# of Trainees	150	150	150	150	150
Per Trainee	\$1,524	\$2,844	(\$927)	(\$394)	(\$1,321)

General | Classroom | On-location | Print | Tapes | CBT | Conferencing | Simulation | Internet | Summary | Annual Cost (◀ ▶)

Total trainees costs per year.

Tutor | Overview | Help | Save | Import | Export | Print | Add Note | Tips | Menu

A graphical representation of the contribution of each category (i.e., trainee, instructor, development, facilities, maintenance and hardware) is presented under the Annual Cost Charts tab. In the present example, we see that the bulk of the expense (over 85%) is due to trainees. Instructor and Development Costs account for 9.3% and 2.5% respectively. Facilities, Maintenance and Hardware Costs, in this case, are minimal.



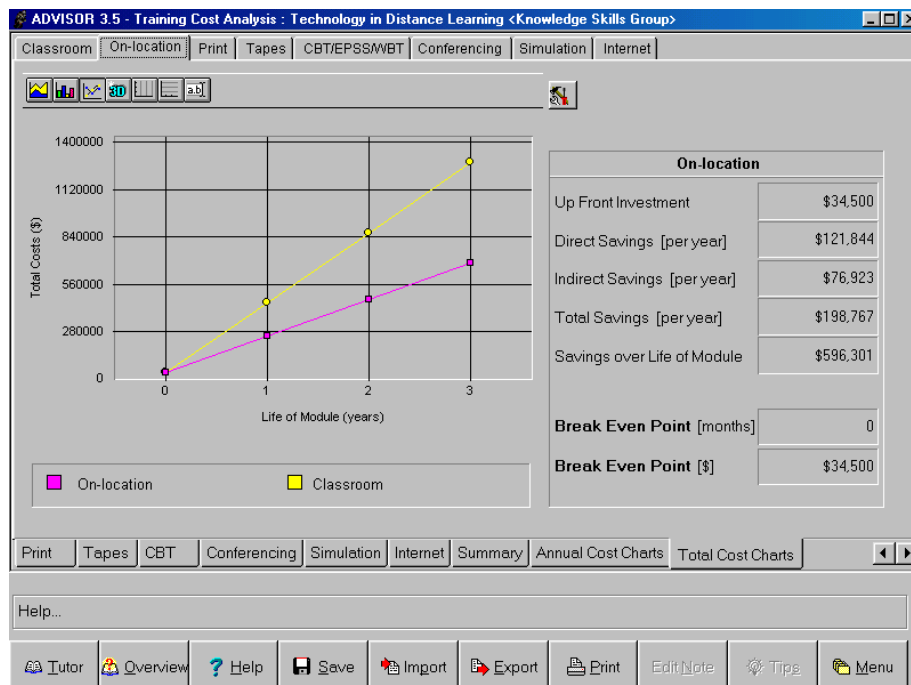
7.5 On-location (Instructor-led) Training

The On-location delivery method is similar to Classroom. The main difference is the location – i.e., where the training takes place. On-location provides other alternatives for delivering instructor-led training – i.e., bring instructor to trainees instead of bringing trainees to the instructor (Classroom). On-location may also be used to evaluate the costs of using external vendors instead of in-house resources (Classroom) for the delivery of training.

Since we are comparing the same instructional goals for the same audience, most of the data is carried forward from the Classroom delivery option to On-location. Simply edit the required factors (Number of Trainees per class and % of Trainees that Travel, for example) and ADVISOR will compute the costs of the On-location delivery option, as well as direct, indirect and total savings. The results are presented under the Summary tab.

A graphical representation of the cost distribution among the six main categories, namely trainee, instructor, development, facilities and hardware, is also presented under the Annual Cost Charts tab.

Up-front investment required to implement the On-location delivery option as well as savings and break-even point – i.e., number of months required to recover the initial investment are presented under the Total Cost Charts tab. Note that the On-location delivery option is compared to the method specified in the Base for Comparison – under the General tab. That is, On-location may be compared to another delivery option (Print, for example), by changing the item in Base for Comparison to Print.



7.6 Print Based Training

The Print option refers to courses delivered in a self-study, print format, such as correspondence courses. The costs are divided into the same categories as Classroom. If Print is a plausible delivery option, the costs for this method can be computed under this section.

Once again, most of the data is carried forward from the Classroom delivery option to Print since we are comparing the same instructional goals for the same audience. Simply edit the required factors (% of Trainees that Travel, for example) and ADVISOR will compute the costs of the Print delivery option, as well as direct, indirect and total savings. The results are presented in a tabular format under the Summary tab and a graphical representation of the cost distribution is presented under the Annual Cost Charts tab.

To simplify and speed computations, two new variables are introduced under the Basic sub-tab for Print. These are:

- ◆ Time Required by Trainee [% of Classroom]. Refers to the time required by an average trainee to complete a print-based, self-study course as opposed to an equivalent instructor-led course. For example, if trainees require the same amount of time to complete the course in a print based or instructor-led format, then input 100%. If trainees are expected to complete the print-based course quicker than the instructor-led course, then the value should be less than 100%. If on the other hand, trainees require more time to complete the print-based course than the instructor-led course, then the value should be more than 100%.

- ◆ Time Required by Instructor [% of Classroom]. Refers to the time required by instructors or facilitators, if any, to support trainees taking a course in print-based format. Once again, the value is expressed as a percentage of an equivalent course delivered in an instructor-led format. For example, if a 10 hours instructor-led course is converted to a self-study print-based format, and the instructor is expected to spend 2 hours supporting trainees, then the "Time Required by Instructor" is 20%. If on the other hand, instructors are expected to provide 15 hours of online support, then the "Time Required by Instructor" is 150%.

ADVISOR 3.5 - Training Cost Analysis : Technology in Distance Learning <Knowledge Skills Group>

Basic | Trainee | Instructor | Development | Facilities | Maintenance | Hardware | Summary

Module Length [hours]	13.0
Time Required by Trainee [% of classroom]	120.0 %
Time Required by Instructor [% of classroom]	20.0 %

% of Trainees that Travel	0.0 %	Days Required by Trainee [per class]	2.1
% of Instructors that Travel	0.0 %	Days Required by Instructor [per class]	0.3
Trainee Travel Length [days]	0.00	Number of Trainees [per year]	165.0
Instructor Travel Length [days]	0.00	Instructor Sessions [per year]	11.0

General | Classroom | On-location | Print | Tapes | CBT | Conferencing | Simulation | Internet | Summary | Annual Cost

Time required by instructors/facilitators to support trainees, relative to classroom.

Tutor | Overview | Help | Save | Import | Export | Print | Add Note | Tips | Menu

Once again, the up-front investment required to implement a Print based delivery option as well as savings and break-even points are presented under the Total Cost Charts tab.

7.7 Audio/Video Based Training

Two delivery options (Audio Tapes and Video Tapes) are included under the Tapes section. They refer to courses delivered in a self-study format, using audio tapes or video tapes. The costs are divided into the same categories as Classroom. If Audio Tapes or Video Tapes may be used for the delivery of training, the costs for either method can be computed under this section.

Only one option can be analyzed at a time. To select a delivery method, click on the arrow down button; drag the mouse to highlight the required option and release. Methods that do not meet the minimum requirements specified in Feasibility Analysis (Audio Tapes, for example) are identified by an asterisk (*).

If both Audio Tapes and Video Tapes can be used for the delivery of training, then you may select either the more effective (with higher score in the Feasibility Analysis module) or economical method (lower costs). Keep in mind that although you may select and compute the costs of any delivery option, ADVISOR will not recommend a delivery method that does not meet the requirements set in the Feasibility Analysis.

Next, estimate the Time Required by Trainees and the Time Required by Instructors to complete the training in comparison to the instructor-led (Classroom) approach. The process is similar to the one described under Print.

Once again, most of the data is carried forward from the Classroom delivery option to the Audio or Video Tapes, since we are comparing the same instructional goals for the same audience. Simply edit the required factors (% of Trainees that Travel, for example) and ADVISOR will compute the costs of the Audio or Video Tapes delivery option, as well as direct, indirect and total savings. The results are presented in a tabular format under the Summary tab and a graphical representation of the cost distribution is presented under the Annual Cost Charts tab.

The up-front investment required to implement the Audio Tapes or Video Tapes delivery option as well as savings and break-even point are presented under the Total Cost Charts tab.

7.8 CBT/EPSS/WBT

The CBT/EPSS/WBT section refers to courses delivered in a self-study format, using computer, Internet and/or Intranet. Several options are considered under this group. These include four computer based training options (i.e., off-the-shelf, simple, customized and multimedia CBT), four web based training options (i.e., off-the-shelf, simple, customized and multimedia WBT) as well as five electronic performance support systems (EPSS) options (i.e., Intelligent tutor, embedded training, hypertext, hypermedia and EPSS).

Delivery Method	Value
Off-the-Shelf CBT	
Simple CBT *	15
Customized CBT *	1.0
Multimedia CBT	11
Intelligent Tutorial *	70.0 %
Embedded Training *	
Hypertext *	
Hypermedia *	
EPSS *	15.0 %
Off-the-Shelf WBT *	
Simple WBT *	
Customized WBT *	1.2
Multimedia WBT *	0.3
Days Required by instructor [per class]	
Number of Trainees [per year]	165.0
Instructor Sessions [per year]	11.0

Only one option can be analyzed at a time. To select a delivery method, click on the arrow down button, drag the mouse to highlight the required option and release. Methods that do not meet the minimum requirements specified in Feasibility Analysis are identified by an asterisk (*).

If more than one option can be used for the delivery of training, then you may select either the more effective (with higher score in the Feasibility Analysis module) or economical method (lower costs). Keep in mind that although you may select and compute the costs of any delivery option, ADVISOR will not recommend a delivery method that does not meet the requirements set in the Feasibility Analysis.

Next, estimate the Time Required by Trainees and the Time Required by Instructors to complete the training in comparison to the instructor-led (Classroom) approach. A number of studies have concluded that a well designed CBT or WBT self-study course can reduce training time between 25% to 60% in comparison to an equivalent instructor-led course. The reduction in training time is mainly attributed to trainee's ability to take the most efficient path to content mastery, skipping areas of strength while focusing on areas of weakness. Details and references are provided in the online help – Tips.

Once again, most of the data is carried forward from the Classroom delivery option to the CBT, WBT or EPSS delivery option, since we are comparing the same instructional goals for the same audience. Simply edit the required factors (% of Trainees that Travel, for example) and ADVISOR will compute the costs of the selected delivery option, as well as direct, indirect and total savings. The results are presented in a tabular format under the Summary tab and a graphical representation of the cost distribution is presented under the Annual Cost Charts tab.

The up-front investment required to implement the CBT, WBT or EPSS delivery option as well as savings and break-even point are presented under the Total Cost Charts tab.

7.9 Conferencing

The Conferencing section refers to courses delivered in real-time using audio, computer, video or Internet conferencing technology. Six options are considered under this section. These include Audio Conferencing, Computer/Data Conferencing, Video-Tele Conferencing (one way video two way audio), Video Conferencing (two way audio and video), Internet Computer Conferencing and Internet Video Conferencing.

Conferencing technology can reduce travel and per diem expenses. Moreover, since training can be transmitted to many regions at the same time, this may increase the number of trainees per class and in-turn reduce the number of classes required each year (i.e., frequency). On the other hand, transmission costs can be substantial and may offset these savings.

Only one option can be analyzed at a time. To select a delivery method, click on the arrow down button; drag the mouse to highlight the required option and release. Methods that do not meet the minimum requirements specified in Feasibility Analysis are identified by an asterisk (*).

If more than one option can be used for the delivery of training, then you may select either the more effective (with higher score in the Feasibility Analysis module) or economical method (lower costs). Keep in mind that although you may select and compute the costs of any delivery option, ADVISOR will not recommend a delivery method that does not meet the requirements set in the Feasibility Analysis.

Next, estimate the Time Required by Trainees and the Time Required by Instructors to complete the training in comparison to the instructor-led (Classroom) approach. The process is similar to the one described under Print.

Once again, most of the data is carried forward from the Classroom delivery option to the Conferencing option, since we are comparing the same instructional goals for the same audience. Simply edit the required factors (% of Trainees that Travel, for example) and ADVISOR will compute the costs of the selected delivery option, as well as direct, indirect and total savings. The results are presented in a tabular format under the Summary tab and a graphical representation of the cost distribution is presented under the Annual Cost Charts tab.

The up-front investment required to implement the Conferencing delivery option as well as savings and break-even point are presented under the Total Cost Charts tab.

7.10 Simulation Based Training

The Simulation section refers to courses that require high-end simulation or virtual reality. In general, the costs for the Simulators and Virtual Reality are fairly high. However, they may provide cost-effective solutions if real equipment is required for the delivery of training; but the use of the real equipment is dangerous, destructive and/or not available.

Only one option can be analyzed at a time. To select a delivery method, click on the arrow down button; drag the mouse to highlight the required option and release. Methods that do not meet the minimum requirements specified in Feasibility Analysis are identified by an asterisk (*).

ADVISOR 3.5 - Training Cost Analysis : Technology in Distance Learning <Knowledge Skills Group>

Basic | Trainee | Instructor | Development | Facilities | Maintenance | Hardware | Summary

Delivery Method: Simulation *

Module Length [hours]: 13.0

Instructor Preparation Time [hrs]: 0.0

Conducted in a lab: Yes No

% of Trainees that Travel: 50.0 %

% of Instructors that Travel: 50.0 %

Trainee Travel Length [days]: 2.00

Instructor Travel Length [days]: 2.00

Number of Trainees [per class]: 15

Number of Instructors [per class]: 1.0

Frequency of Module [per year]: 11

Time Req'd by Trainee [% class.]: 70.0 %

Time Req'd by Instructor [% class.]: 70.0 %

Days Required by Trainee [per class]: 2.2

Days Required by Instructor [per class]: 2.2

Number of Trainees [per year]: 165.0

Instructor Sessions [per year]: 11.0

* Delivery method did not meet minimum requirements in Feasibility Analysis

General | Classroom | On-location | Print | Tapes | CBT | Conferencing | Simulation | Internet | Summary | Annual Cost (< >)

Select Delivery Method

Tutor | Overview | Help | Save | Import | Export | Print | Add Note | Tips | Menu

Keep in mind that although you may select and compute the costs of any delivery option, ADVISOR will not recommend a delivery method that does not meet the requirements set in the Feasibility Analysis.

Next, estimate the Time Required by Trainees and the Time Required by Instructors to complete the training in comparison to the instructor-led (Classroom) approach. The process is similar to the one described under Print.

Once again, most of the data is carried forward from the Classroom delivery option to the Simulation option, since we are comparing the same instructional goals for the same audience. Simply edit the required factors (% of Trainees that Travel, for example) and ADVISOR will compute the costs of the selected delivery option, as well as direct, indirect and total savings. The results are presented in a tabular format under the Summary tab and a graphical representation of the cost distribution is presented under the Annual Cost Charts tab.

The up-front investment required to implement the Simulation delivery option as well as savings and break-even point are presented under the Total Cost Charts tab.

7.11 Internet – Simulated Classroom

Internet – Simulated Classroom also known as virtual learning space, or virtual learning networks, refers to synchronous (real-time) courses delivered over the Internet/Intranet in a simulated classroom setting.

Once again, most of the data is carried forward from the Classroom delivery option to the Internet option, since we are comparing the same instructional goals for the same audience. Estimate the Time Required by Trainees and the Time Required by Instructors to complete the training in comparison to the instructor-led (Classroom) approach and edit the required factors (% of Trainees that Travel, for example). ADVISOR will compute the costs of the Internet delivery option, as well as direct, indirect and total savings.

ADVISOR 3.5 - Training Cost Analysis : Technology in Distance Learning <Knowledge Skills Group>

Basic | Trainee | Instructor | Development | Facilities | Maintenance | Hardware | Summary

Delivery Method: Internet-Simulated Classroom ^

Module Length [hours]	13.0	Number of Trainees [per class]	15
Instructor Preparation Time [hrs] <input type="text" value="0.0"/>	0.0	Number of Instructors [per class]	1.0
		Frequency of Module [per year]	11
Conducted in a lab <input type="radio"/> Yes <input checked="" type="radio"/> No		Time Req'd by Trainee [% class.] <input type="text" value="100.0"/>	100.0 %
		Time Req'd by Instructor [% class.] <input type="text" value="100.0"/>	100.0 %
% of Trainees that Travel <input type="text" value="0.0 %"/>	0.0 %	Days Required by Trainee [per class]	1.7
% of Instructors that Travel <input type="text" value="0.0 %"/>	0.0 %	Days Required by Instructor [per class]	1.7
Trainee Travel Length [days] <input type="text" value="0.00"/>	0.00	Number of Trainees [per year]	165.0
Instructor Travel Length [days] <input type="text" value="0.00"/>	0.00	Instructor Sessions [per year]	11.0

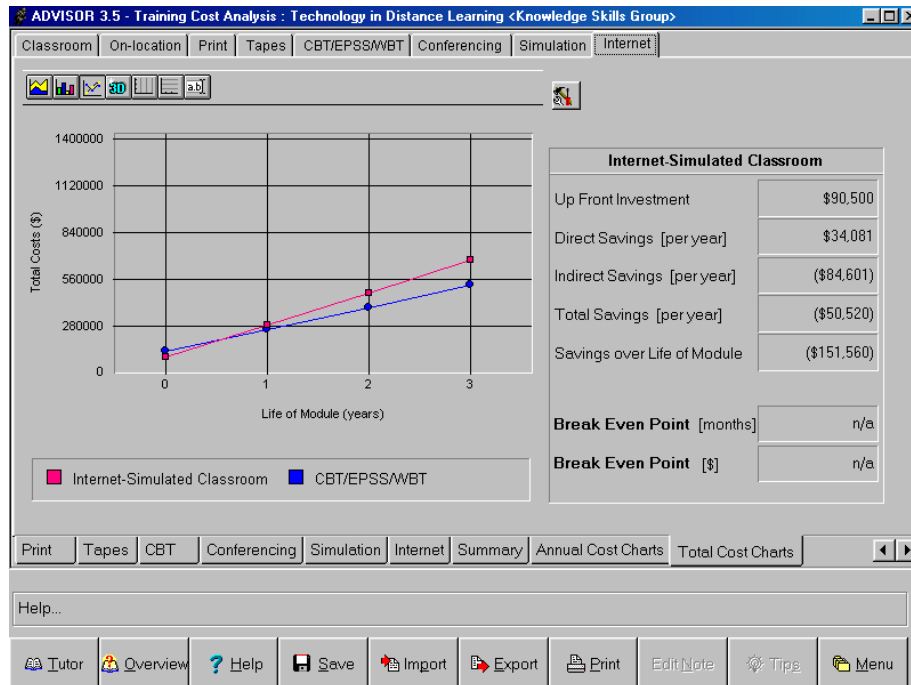
General | Classroom | On-location | Print | Tapes | CBT | Conferencing | Simulation | Internet | Summary | Annual Cost (◀ ▶)

Time required to complete the course, relative to classroom.

Tutor | Overview | Help | Save | Import | Export | Print | Add Note | Tips | Menu

The results are presented in a tabular format under the Summary tab and a graphical representation of the cost distribution is presented under the Annual Cost Charts tab.

The up-front investment required to implement the Internet delivery option as well as savings and break-even point are presented under the Total Cost Charts tab. The following chart compares the cost of delivering a course using Computer Based Training versus Internet – Simulated Classroom. In this example, the cost of the CBT approach is less then the Internet – Classroom Simulated option.



7.12 Comparing the Costs of Alternate Delivery Options

Here is where ADVISOR can save you a great deal of time in computing and comparing the costs of alternate delivery options.

To demonstrate how the values are computed, we will focus on a single delivery option – Computer Based Training (CBT). Notice that four types of information (upper tabs) are provided under the Summary. These are average annual Costs; Savings – in comparison to delivery option specified in Base for Comparison (Classroom, in present example); up-front Investment required to implement the CBT option; and Break Even point – number of months required to recover initial investment and generate savings. Once again, the break-even point is computed relative to Classroom (delivery option specified in Base for Comparison).

ADVISOR 3.5 - Training Cost Analysis : Technology in Distance Learning <Knowledge Skills Group>

Costs Savings Investment Break Even

	Classroom	On-location	Print	Tapes	CBT/EPSS/WBT	Conferencing
Trainees	\$363,232	\$151,372	\$186,636	\$124,424	\$106,792	\$151,372
Instructors +	\$39,697	\$52,790	\$13,621	\$13,621	\$13,621	\$26,603
Development +	\$10,833	\$10,833	\$16,833	\$11,833	\$29,667	\$17,833
Facilities +	\$4,200	\$4,200	\$0	\$0	\$0	\$4,200
Maintenance +	\$8,002	\$8,002	\$11,452	\$10,777	\$12,827	\$61,132
Hardware +	\$667	\$667	\$0	\$833	\$11,667	\$5,333
Total =	\$426,631	\$227,864	\$228,542	\$161,488	\$174,574	\$266,473
# of Trainees /	150	150	150	150	150	150
Per Trainee =	\$2,844	\$1,519	\$1,524	\$1,077	\$1,164	\$1,776

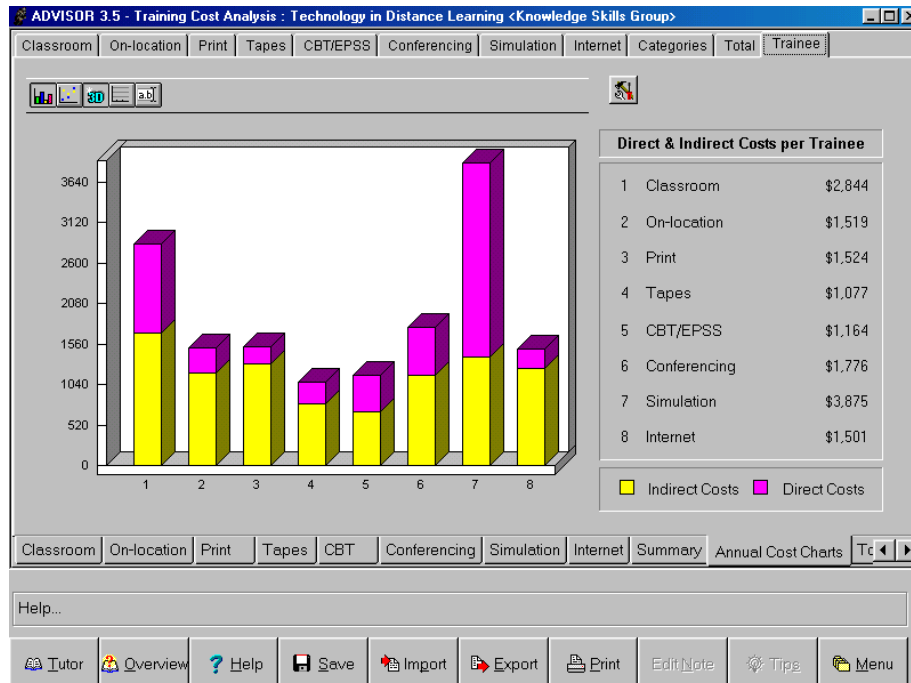
General Classroom On-location Print Tapes CBT Conferencing Simulation Internet Summary Annual Cost (◀ ▶)

Total trainees costs per year.

Tutor Overview Help Save Import Export Print Add Note Tips Menu

Costs

These represent the average annual cost per year. The costs are compiled from each category under the CBT section namely Trainee, Instructor, Development, Facilities, Maintenance and Hardware and include both direct and indirect costs. The results can be easily validated by comparing the value of each cell (Trainees, for example) to the corresponding cell under the CBT section (Total Trainees Cost per year). Although the Total annual costs do not accurately reflect how the training funds will be spent (i.e., 1st year spending will be much higher than 2nd and 3rd year), the Cost per Trainee is accurate – when the costs are averaged over the life of the course. Moreover, you can easily determine the most economical delivery option by comparing the cost per trainee. A visual representation of the costs is presented under the Annual Cost Charts.



Savings

These represent savings that can be generated if Computer Based Training is used as a delivery option instead of Classroom (delivery option specified in Base for Comparison). The total annual savings (\$252,058) can be easily validated by subtracting the annual training cost of the CBT delivery option (\$174,574) from the Classroom delivery option (\$426,631). Once again, the annual savings do not accurately reflect when the savings will occur, however, savings over the Life of Module are accurate. Moreover, ADVISOR divides the savings between direct (impacts your budget) and indirect (impacts productivity/resources). In the present example, a CBT delivery option will result in \$100,579 saving in our training budget in comparison to Classroom.

ADVISOR 3.5 - Training Cost Analysis : Technology in Distance Learning <Knowledge Skills Group>

Costs Savings Investment Break Even

Savings	Classroom	On-location	Print	Tapes	CBT/EPSS/WBT	Conferencing
Direct	\$0	\$121,844	\$139,031	\$130,310	\$100,579	\$79,848
Indirect +	\$0	\$76,923	\$59,059	\$134,834	\$151,479	\$80,310
Total =	\$0	\$198,767	\$198,090	\$265,144	\$252,058	\$160,158
Life of Module	\$0	\$596,301	\$594,270	\$795,432	\$756,174	\$480,474

General Classroom On-location Print Tapes CBT Conferencing Simulation Internet Summary Annual Cost

Total savings per year.

Tutor Overview Help Save Import Export Print Add Note Tips Menu

Investment

This represents the initial monetary outlay to launch the training program. It is computed by adding the total development costs to hardware costs. Both direct and indirect costs within these items are included in the Up-front Cost.

The screenshot shows the 'Investment' tab in the ADVISOR 3.5 software. The main window displays a table with the following data:

	Classroom	On-location	Print	Tapes	CBT/EPSS/WBT	Conferencing
Development	\$32,500	\$32,500	\$50,500	\$35,500	\$89,000	\$53,500
Hardware	\$2,000	\$2,000	\$0	\$2,500	\$35,000	\$16,000
Investment	\$34,500	\$34,500	\$50,500	\$38,000	\$124,000	\$69,500

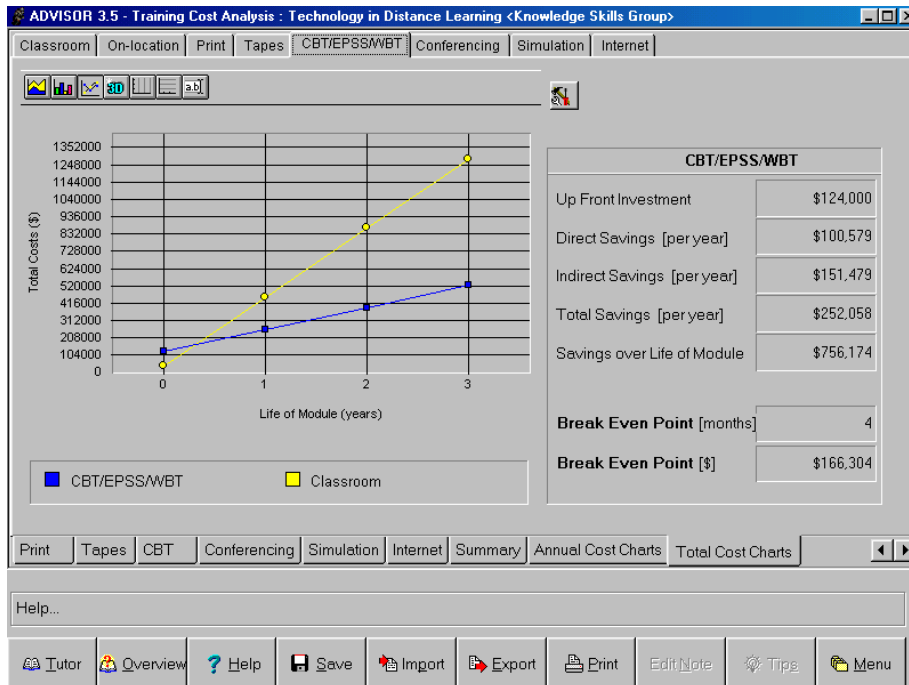
Below the table, there are navigation tabs: General, Classroom, On-location, Print, Tapes, CBT, Conferencing, Simulation, Internet, Summary, and Annual Cost. At the bottom, there is a toolbar with icons for Tutor, Overview, Help, Save, Import, Export, Print, Add Note, Tips, and Menu.

Break Even

This represents the number of months required to recover initial investment and generate savings – in comparison to delivery option specified in Base for Comparison (Classroom, in present example). The break-even point is computed as follows:

CBT Up Front Investment		\$124,000
Classroom Up Front Investment	-	\$ 34,500
Net CBT Up Front Investment		\$ 89,500
CBT Annual Cost		\$133,240
(excluding Development & Hardware)		
Classroom Annual Cost	-	\$415,131
(excluding Development & Hardware)		
Net CBT Annual Savings		(\$281,891)
(excluding Development & Hardware)		
Break Even Point (years)		$\$89,500 / \$281,891 = 0.32$
Break Even Point (months)		$0.32 \times 12 = 4$ months

A graphical representation of the actual cost over the life of the course is presented under the Total Cost Charts.



Chapter 8

Time Analysis

8.1 Introduction

In some cases, reducing the overall time required to train employees (i.e., 6 months instead of 9 months) may have a significant impact on the organization's bottom line.

To determine whether time is a factor, you should re-examine the reason for the course. That is, which problem are we trying to resolve, and what is the impact on the organization if the problem is resolved sooner. If the main objective of the training is to eliminate a costly problem (introduce a new process to minimize the need for overtime, for example) or increase revenue (educate distributors on a new product) then time has a measurable value and may impact the selection of the delivery method. In other words, delivery options that result in a faster training process may have a significant advantage over others.

This module will assist you in computing savings or potential revenue that may result from completing the training in a shorter period of time.

8.2 Analyzing the Value of Time

Once again, you should keep in mind that we are dealing with one learning group at a time – Knowledge Skills, for example. The most critical factor in this analysis is the value of time (Saving/Profit per day) – i.e., how much saving or profit could result from completing the training in a shorter period of time. The following examples illustrate how this value can be determined:

Improve productivity. If the main objective of the course is to improve productivity, then the sooner the training is completed, the sooner the organization can benefit from gained productivity (increased revenue or production, for example). The profit per day in this case is equal to the average projected increase in daily revenue less expenses.

Reduce errors. If the main objective of the course is to reduce errors, then the sooner the training is completed, the sooner the organization will save money by minimizing waste or lost productivity. The saving per day in this case is equal to average projected reduction in daily waste.

X-training that leads to downsizing. If the main objective of the course is to reduce the number of personnel, then the sooner the training is completed; the sooner the downsizing can take place. The saving per day in this case is equal to average daily cost (salaries plus fringe benefits) that will result from downsizing.

If saving or profit per day cannot be estimated, then the impact of time cannot be measured and there is no need to complete the Time Analysis module.

8.3 Computing the Value of Time

The value of time is determined as follows:

1. Estimate the savings/profits per day that could result from training.
2. For each method, compute the number of days required to design, develop and deliver the training to the target audience.
3. Identify the delivery method that requires the longest amount of time to complete (On-location, for example). This implies that other delivery options will have an advantage over On-location; i.e., allow organization to realize saving/profits sooner than On-location.
4. Compute the savings in time that will result from using alternate delivery options – relative to On-location. If 213 days are required by On-location for conducting the training while Print requires 139 days, then Print has a 74 days advantage (213-139) over On-location.
5. Compute the value of time by multiplying Savings in Training Time [item 4] by savings/profits per day [item 1]. In the case of Print, this translates into \$7,400 (74 days x \$100).

This implies that if the costs of alternate delivery options are equal (On-location and Print, for example), then Print should be selected since it will allow us in meeting our training needs sooner which in-turn translates in \$7,400 savings or profit to the organization.

ADVISOR 3.5 - Time Analysis : Technology in Distance Learning <Knowledge Skills Group>

Reason for Course: product [improve productivity]

Saving/Profit [per day]: \$100

Longest Delivery Method: On-location [213 days]

	Classroom	On-location	Print	Tapes
Development Time [business days]	0	114	77	60
Setup Time [business days]	+ 19	19	29	29
Delivery Time [business days]	+ 61	80	33	33
Total Time [business days]	= 80	213	139	122
Saving in Training Time [days]	133	0	74	91
Total Savings [\$]	\$13,300	\$0	\$7,400	\$9,100

General Purpose Status Development Setup Delivery Summary Charts

Savings/Profits that result from completing the training in a shorter period of time.

Tutor Overview Help Save Import Print Add Note Tips Menu

A graphical representation of the results is presented under the Charts tab.

Chapter 9

Revenue Analysis

9.1 Introduction

If the training material is generic, and the demand for the course extends beyond the target audience, then it may be possible to generate revenue from selling or licensing the training material. In this case, potential revenue should be measured, and taken into consideration when selecting the delivery method.

9.2 Computing Revenue

A simple procedure is provided for computing potential revenue from selling or licensing the training material. Keep in mind that we are dealing with one learning group at a time – Knowledge Skills, for example. For reference, potential revenue from an Instructor-led training course will be presented:

Estimate retail price of course material		\$200
Estimate number of copies sold or licensed per year	x	100
Estimate profit margin (revenue less expenses)	x	15%
Annual Net Revenue		\$3,000
Expected Life of Course	x	3 years
Total Net Revenue over life on course		\$9,000

This implies that if the costs of alternate delivery options are equal (Classroom and Print, for example), but the demand for an instructor-led (Classroom) course is higher than a self-study Print based course, then the instructor-led (Classroom) course should be selected. In the example presented below, Classroom will generate \$3,375 (\$9,000 - \$5,625) more than Print.

The screenshot shows the 'ADVISOR 3.5 - Revenue Analysis' window. It features a 'Module' section with dropdown menus for 'Unique/Innovative' (Yes), 'Quality' (High), 'External Demand' (High), 'Organization Policy' (Supportive), and 'Proprietary Information' (Low). A yellow callout box contains the text: 'It may be possible to generate revenue or reduce costs by selling or licensing the course to other organizations. A self-study delivery option, in this case, may provide better opportunities.' Below this is a table comparing four delivery options: Classroom, On-location, Print, and Tapes. The table includes rows for Course Retail Price, # of Units Sold [per year], Profit Margin, Net Revenue, and Total Revenue [life of course]. The 'Expected Life of Course' is set to 3. At the bottom, there are tabs for 'General', 'Revenue', and 'Charts', and a toolbar with icons for Tutor, Overview, Help, Save, Import, Print, Add Note, Tips, and Menu.

	Classroom	On-location	Print	Tapes
Course Retail Price	\$200	\$200	\$25	\$0
# of Units Sold [per year]	100	100	500	0
Profit Margin	15 %	15 %	15 %	15 %
Net Revenue	\$3,000	\$3,000	\$1,875	\$0
Total Revenue [life of course]	\$9,000	\$9,000	\$5,625	\$0

A graphical representation of potential revenue is presented under the Charts tab.

Chapter 10

Risk Analysis

10.1 Introduction

Organization's experience and readiness as well as employees and management attitude towards training technology can impact the effectiveness as well as the cost of training. The impact (often referred to as hidden cost) can result in one or more of the following:

- ◆ Re-training of development, delivery and support personnel to make effective use of a new training technology.
- ◆ Changes to policies and procedures to accommodate a new learning technology.
- ◆ Changes to performance and technical support systems to meet the requirements of a new delivery option.
- ◆ Development of a communication plan to promote the benefits and use of a new training technology.
- ◆ Administrative costs associated with the hiring or reduction of personnel as a result of the introduction of a new training technology.
- ◆ Changes to infrastructure and daily operation of the unit/organization to facilitate the implementation of a new training technology.
- ◆ Development of a change management plan to facilitate the transition from an existing system to a new training technology.

In general, the more experience an organization has in the use of a delivery option, the lower the risk and in-turn the hidden costs. The Risk Analysis module will assist you in computing hidden costs that may be required to successfully implement a new delivery option.

10.2 Analyzing the Risk

Once again, you should keep in mind that the analysis deals with one instructional group at a time – Knowledge Skills, for example.

A series of questions (cells) are presented in a multiple-choice format. Clarification for each question can be viewed by clicking on the Tips button. To select a choice, click on the arrow down button to display the options, drag the mouse to highlight the required option and release. You do not have to complete all the cells. Estimates for hidden costs are based on information provided under the Risk Analysis as well as Organization/Unit Experience (Chapter 2).

Two factors (questions) related to the availability of time and funds to implement each of the plausible delivery options have a significant impact on the results. After examining the up-front investment and time required by each delivery option, indicate whether funds and time will be available to implement the method. If the answer is “No” to funds or time, then the delivery option will not be considered further by ADVIOSR.

Once you have responded to the questions for each of the plausible delivery options, click on the Hidden Costs tab to view the results. You may also query the system for the reason behind the recommendations as well as edit the recommended values.

10.3 Estimating Hidden Costs

Based on data furnished by the user, ADVIOSR provides preliminary estimates of the time and costs required to implement each of the plausible delivery options. The results are presented under the Hidden Costs tab, which is divided into eight sections (upper tabs). A brief description of each hidden cost follows:

Re-training of Development Team. For each delivery option, the average number of days required to re-train each individual in the development team is estimated based on the organization/unit experience. To view the reasons behind the recommendations, click on the [?] button. Edit the number of training days proposed by ADVIOSR, if required, and input the number of individuals that would require re-training as well as the average daily cost per person. ADVIOSR computes the costs of re-training the development team as follows:

# of Personnel Affected		2
Training Days Required	x	3
Daily Cost of Training	x	\$500
Cost of Re-training Development Team		\$3,000

	Tapes	CBT/EPSS/WBT	Conferencing	Internet
Development Team	1	2	2	2
# of Personnel Affected	0	0	3	3
Training Days Required	\$500	\$500	\$500	\$500
Daily Cost of Training	\$0	\$0	\$3,000	\$3,000
Subtotal				
Delivery/Support Team	1	1	2	2
# of Personnel Affected	0	3	4	4
Training Days Required	\$500	\$500	\$500	\$500
Daily Cost of Training	\$0	\$1,500	\$4,000	\$4,000
Subtotal				
Trainees	0	10	10	10
Dvlp of Computer Skills Module [days]	\$500	\$500	\$500	\$500
Training Development Cost	\$0	\$5,000	\$5,000	\$5,000
Subtotal	\$0	\$6,500	\$12,000	\$12,000
Total Cost				

Re-training of Delivery/Support Team. For each delivery option, the number of days required to re-train each individual of the delivery/support team is estimated based on the organization/unit experience. To view the reasons behind the recommendations, click on the [?] button. Edit the number of training days proposed by ADVISOR, if required, and input the number of individuals that require re-training as well as the average daily cost per person. The costs of re-training the delivery/support team are computed similar to above (Re-training of Development team).

Develop Trainees Computer Skills. To make effective use of technology based delivery options – such as computer based training, computer conferencing and web based training, for example – trainees are expected to have basic computer skills. If the target audience does not have adequate skills in using a computer, then estimate the number of days required to develop a computer skills course as well as the average daily cost for developing the course. ADVISOR computes the costs of developing a computer skills course as follows:

# of Days Required to Develop a Computer Skills Course		10
Daily Cost for Course Development	x	\$500
Cost of Computer Skills Course		\$5,000

Create or Modify Policies/Procedures. Introducing a new approach for the delivery of training may require changes to existing policies and procedures. For example, new policies may be required for registering trainees in the course, collecting data and issuing certificates. For each delivery option, the number of days required to create or modify policies and procedures is estimated based on the quality of existing policies, procedures and standards and the organization's experience. To view the reasons behind the recommendations, click on the [?] button. Edit the number of days proposed by ADVISOR, if required, and estimate the average daily cost of administrative staff that would be involved in making changes to policies/procedures. ADVISOR computes the costs of policies/procedures by multiplying the number of days required to modify policies by the daily cost.

Create or Modify Support System. Introducing a new approach for the delivery of training may require changes to the existing support system. For example, how, when and whom should trainees contact for technical support. This is especially important for self-study delivery options. For each delivery option, the number of days required to create or modify the support system is estimated based on the quality of existing support policies and procedures, and the organization's experience. To view the reasons behind the recommendations, click on the [?] button. Edit the number of days proposed by ADVISOR, if required, and estimate the average daily costs of individuals that would be involved in making changes to the support system. ADVISOR computes the costs of the support system by multiplying the number of days required to modify support system by the daily cost.

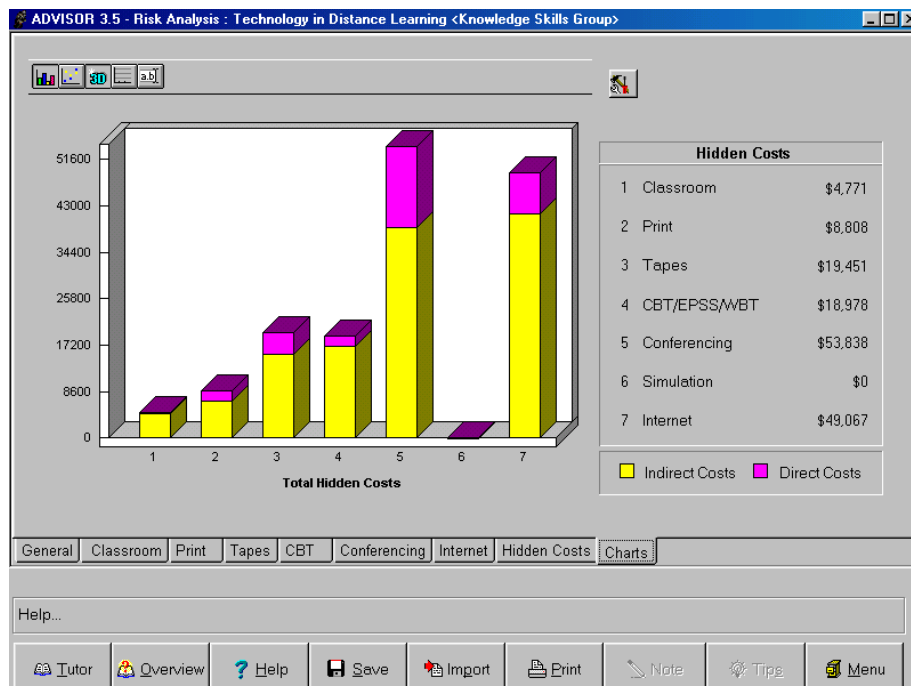
Create or Modify Communication Plan. If the resistance to a new approach is high, then a communication plan may be required to highlight the benefits of the delivery method. A communication plan may include the following items: why web based training has been selected, the advantages to trainees, trainers and administrators, and so on. For each delivery option, the number of days required to create or modify communication plan is estimated based on trainees, trainers and management attitude as well as the organization's experience. To view the reasons behind the recommendations, click on the [?] button. Edit the number of days proposed by ADVISOR, if required, and estimate the average daily costs of individuals that would be involved in the development of the communication plan. ADVISOR computes the costs of the communication plan by multiplying the number of days required to modify the communication plan by the daily cost.

Administrative Costs. Some delivery options may require the organization/ unit to hire or reduce the number of development, delivery and support personnel. For each delivery option, the number of days required to hire or reduce personnel is estimated based on the number of personnel involved and the availability of experienced personnel within the organization. To view the reasons behind the recommendations, click on the [?] button. Edit the number of days proposed by ADVISOR, if required, and estimate the average daily costs of individuals responsible for hiring or reallocating personnel. ADVISOR computes the administrative costs by multiplying the number of administrative days required by the daily cost.

Implementation Costs. Implementing a new delivery option may require changes to the infrastructure and daily operation of the organization/unit. This may include, for example, the establishment of a new group or division to foresee its implementation or the reassignment of roles and responsibilities. For each delivery option, the number of days required to implement the delivery method is estimated based on projected changes to organization/unit infrastructure and daily operation. To view the reasons behind the recommendations, click on the [?] button. Edit the number of days proposed by ADVISOR, if required, and estimate the average daily costs of management and administrative staff responsible for implementing the changes. ADVISOR computes the administrative costs by multiplying the number of administrative days required by the daily cost.

Change Management Plan. If the existing system should be maintained while implementing a new delivery option, then a change management plan may be required. A change management plan may include policies and procedures for migrating to a new system, for example. For each delivery option, the number of days required to implement the change management plan is estimated based on the length of the transition period and experience of the organization/unit. To view the reasons behind the recommendations, click on the [?] button. Edit the number of days proposed by ADVISOR, if required, and estimate the average daily costs of management and administrative staff responsible for implementing the changes. ADVISOR computes the administrative costs by multiplying the number of administrative days required by the daily cost.

All hidden costs are compiled and presented under the Summary tab. A graphical representation of the results is also presented under the Charts tab. It should also be noted that all costs should be classified as direct (impacts your budget) and indirect (impacts resources or the budget of others) by selecting the corresponding [D] or [I] button. A recommend [R] button is also provided for each hidden cost, and may be used to restore the value estimated by ADVISOR.



Chapter 11

Module Summary

11.1 Introduction

Results from Feasibility Analysis (Chapter 5), as well as direct and indirect costs from Training Cost Analysis (Chapter 7), Time Analysis (Chapter 8), Revenue Analysis (Chapter 9) and Risk Analysis (Chapter 10) are compiled and presented in this module. Based on this data, the most economical methods that meet your training needs are presented. The process used to select and rate the delivery methods will be explained in greater detail in this chapter.

11.2 Direct and Indirect Costs

Once again, keep in mind that we are dealing with one learning group at a time – Knowledge Skills, for example. The costs are reported under the Module Summary in two main groups – direct (impacts your budget) and indirect (impacts resources or the budget of others).

This distinction is important, because the most economical options may vary based on the costs that you wish to take into account. Let us assume that the following four options may be used for the delivery of training:

	Instructor-led	Print	CBT	Internet
Direct Cost	\$134,085	\$ 87,734	\$163,715	\$102,977
Indirect Cost	\$545,281	\$593,675	\$327,285	\$606,972
Total Cost	\$679,366	\$681,409	\$491,000	\$709,949

From a corporate manager perspective, all costs (direct plus indirect) are critical and should be taken into consideration. In this case, the options from least to most expensive, would be rated as follows:

	Instructor-led	Print	CBT	Internet
Total Cost	\$679,366	\$681,409	\$491,000	\$709,949
Rating	2	3	1	4

A training manager with a limited budget may only consider costs that impact his or her budget – i.e., only direct costs. In this case, the options from least to most expensive would be rated as follows:

	Instructor-led	Print	CBT	Internet
Direct Cost	\$134,085	\$ 87,734	\$163,715	\$102,977
Rating	3	1	4	2

CBT, which is the 1st choice for corporate manager has the highest impact on the training manager's budget and as a result is rated 4th.

By manipulating the Contribution Factor for Direct Costs and Indirect Costs, you can examine the results from different angles. For example, to consider all costs (i.e., both direct and indirect) in the decision, then the Contribution Factor for Direct and Indirect Costs should be kept at 100%. If, on the other hand, you do not wish to consider Indirect Costs then the Contribution Factor for Indirect Costs can be changed to 0%. If, for any reason, only half the Indirect Costs should be considered in the analysis, then Contribution Factor for Indirect Costs can be changed to 50%.

A graphical representation of the direct and indirect costs is presented under the Charts tab.

	Contribution Factor	Delivery Methods			
		Classroom	On-location	Tapes	CBT/EPSS/WBT
Direct Cost	100.0 %	\$499,617	\$134,085	\$121,357	\$163,715
Indirect Cost	100.0 %	\$762,750	\$545,281	\$373,458	\$327,285
Total Cost [over life of course]		\$1,262,367	\$679,366	\$494,815	\$491,000
# of Trainees		450	450	450	450
Cost per Trainee		\$2,805	\$1,510	\$1,100	\$1,091

What percentage of the direct costs should be considered in the analysis? Note

Tutor Overview Help Save Export Print Edit Note Tips Menu

11.3 Recommendations

Plausible delivery methods are presented in descending order – from most to least economical – under the Recommendations tab. For each option, key data is listed in a tabular format, which includes the effectiveness of delivery method, up-front investment required to implement, annual reoccurring (direct) costs as well as potential savings – in comparison the delivery option specified under Base for Comparison in Training Cost Analysis. The remaining delivery options are presented underneath – with no statistical data. To find out why a method has not been recommended, click on the corresponding [?] button.

The screenshot shows the ADVISOR 3.5 software interface. At the top, there are tabs for 'Summary', 'Off-the-Shelf CBT', 'Video Tapes', 'On-location', 'Video Conferencing', and 'Classroom'. Below these is a table with columns for 'Effectiveness', 'Up-front', 'Annual Costs', and 'Savings over Life'. The table lists various delivery methods and their associated costs and effectiveness percentages. A yellow box in the center of the screen displays the following text:

Reason(s) for Multimedia WBT disqualification

1. Alternate delivery method (Off-the-Shelf CBT) was costed in Cost Analysis
2. Did not meet minimum requirements in Feasibility Analysis:
Effectiveness (0%) < Minimum Score (70%)

At the bottom of the interface, there are buttons for 'Total Cost', 'Charts', and 'Recommendations'. A 'Help...' section is visible at the bottom left, and a toolbar with icons for Tutor, Overview, Help, Save, Export, Print, Note, Tips, and Menu is at the bottom right.

	Effectiveness	Up-front	Annual Costs	Savings over Life
Off-the-Shelf CBT	83 %	\$142,978	\$28,279	\$771,367
Video Tapes	81 %	\$57,451	\$27,226	\$767,552
On-location	75 %	\$39,271	\$44,363	\$583,001
Video Conferencing	74 %	\$123,338	\$81,683	\$422,732
Classroom	70 %	\$39,271	\$166,207	\$0

The following criteria is used in rating the delivery options:

- ◆ Delivery method should meet the minimum criteria set in the Feasibility Analysis. Otherwise, it is not considered by ADVISOR.
- ◆ Only one delivery method from each of the eight main groups namely Classroom, On-location, Print, Tapes, CBT/EPSS/WBT, Conferencing, Simulation and Internet – is considered. If both Off-the-Shelf CBT and Multimedia CBT may be used for the delivery of training, then the user will be required to select and compute the costs of one of these options – Off -the-Shelf CBT, for example. In this case, Multimedia CBT will not be considered by ADVISOR.
- ◆ Sufficient funds should be available to develop the training. If the user indicates otherwise – under the Risk Analysis – the delivery option will not be considered further by ADVISOR.
- ◆ Sufficient time should be available to design, develop and deliver the training. If the user indicates otherwise – under the Risk Analysis – the delivery option will not be considered further by ADVISOR.
- ◆ Plausible delivery options (that met the five criteria above) are sorted from most economical to least economical. ADVISOR recommends the most economical method that meets your needs – 1st option in the list.

Additional details for plausible delivery options are also available by clicking on the corresponding upper tab.

Delivery Method		Supplements	
Off-the-Shelf CBT		Not available	
Effectiveness	83 %	Resources [weeks per year]	
Up-front Investment	\$142,978	Trainers	3.7
Annual Costs	\$28,279	Developers	0.0
Direct Savings	\$335,902	Administrative	11.5
Indirect Savings	\$435,465	Facilities [days per year]	0.0
Savings over Life of Module	\$771,367		

Buttons: Total Cost, Charts, Recommendations, Help...

Navigation icons: Tutor, Overview, Help, Save, Export, Print, Note, Tips, Menu

In addition to the Up-front investment and annual reoccurring costs required to implement each option, ADVISOR estimates the resources required to develop, deliver/support and administer the training. The number of days per year a facility is required for the delivery of training, is also reported.

11.4 Computations

For reference, method used to compute the values under the Module Summary will be presented.

Up-front Investment

This represents the initial monetary outlay to launch one of the delivery options. It is computed by adding the Total Development Costs and Hardware Costs under Training Cost Analysis to the Total Hidden Costs under Risk Analysis. Both direct and indirect costs within these items are included in the Up-front Investment.

Annual (Recurring) Costs

This represents the annual direct costs required by the unit/organization to maintain, update, administer, deliver and support the training program on a yearly basis. Note that it does not include initial up-front costs (namely development, hardware and hidden), nor indirect costs – i.e., costs incurred by other units/departments. Indirect costs are accounted for separately as resources required for running the project.

Direct and Indirect Savings

These represent the total savings that a delivery option will generate in comparison with the delivery option specified in Base for Comparison under Training Cost Analysis module. The values are computed by subtracting the direct and indirect costs of the two delivery options. These values are reported in the Module Summary under the Total Costs tab.

Trainers [weeks per year]

If the Instructor's Daily Costs are classified as indirect, then the results are reported in the Module Summary as a resource, i.e., number of weeks per year an instructor will be required to run the course. In the example shown on page 99, an instructor will be required for 3.7 weeks per year. The instructor, in this case, is assumed to be available to the unit/organization without additional costs, i.e., the instructor is not paid from the unit/ organization budget. This value was computed as follows:

- From the Training Cost Analysis module, add the Course Length (13 hours) to the Instructor Preparation Time (0 hours) to obtain the total number of hours required by the instructor per class (13 hours).
- Since only 15% of the instructor's time is utilized to support CBT, # of days required by instructor per class is equal to:
 $13 \text{ hours} \times 15\% / 7.5 \text{ working hours per day} = 0.3 \text{ days}$
- Since the course is delivered 11 times per year, the number of instructor days per year is equal to:
 $0.3 \times 11 = 3.3 \text{ days}$.
- From Risk Analysis module, number days required for retraining support staff = 13 days
- Total Number of instructor days required: $3.3 + 13 = 16.3 \text{ days}$. Note that these are working or business days.
- Translate this into calendar days will give:
 $16.3 \text{ business days} \times 365 \text{ days per year} / 230 \text{ productive days per year} = 26 \text{ calendar days}$
- Translate this to weeks gives: $26 \text{ calendar days} / 7 \text{ days per week} = 3.7 \text{ weeks per year}$.

Therefore, delivering the course using CBT (page 70) would require, in this case, a \$142,978 in up-front investment and \$28,279 annually. In addition, the following resources would be required, instructor 3.7 weeks per year, developers (none), administrative staff 11.5 weeks per year and facilities (none). The Annual (Recurring) Costs of \$28,279 would be significantly higher if these resources were not available free of charge to the unit/ organization, i.e., if these costs have been classified as direct.

Now we will show how ADVISOR computed the remaining resources for the CBT delivery option, namely Developers, Administrative and Facilities.

Developers

Since all development costs have been classified as direct, no additional resources will be required to develop the training course, in the present case.

Administrative

Administrative Costs under the Training Cost Analysis Maintenance tab, as well as under Risk Analysis (i.e., Policies, Support, Communication Plan, Administrative, Implementation and Change Management tabs) were classified as indirect, i.e., do not impact the unit/organization budget. In the example shown on page 99, an instructor will be required for 11.5 weeks per year. This value was computed as follows:

- From the Training Cost Analysis Maintenance tab, the number of days required by a clerical staff to administer the course is indicated as 22.
- From the Risk Analysis, the total number of days required by administrative staff is equal to 29.
- Total number of administrative staff per year is: $22 + 29 = 51$ days
- Translate this into calendar days will give:
 $51 \text{ business days} \times 365 \text{ days per year} / 230 \text{ productive days per year} = 81 \text{ calendar days}$
- Translate this to weeks gives: $81 \text{ calendar days} / 7 \text{ days per week} = 11.5 \text{ weeks per year}$.

Facilities

Since all facilities costs have been classified as direct (rented externally, for example), no internal facilities will be required to deliver the training course, in the present case.

It should be noted that for some delivery options, certain values (facilities, for example) are not relevant and therefore the value will always appear as zero. Tips can alert the user to this condition. Although the above calculations were limited to the CBT method, the same concept applies to all other delivery options. You do not need to be preoccupied with this lengthy arithmetic. We simply provide this information in order to take the “magic” out of the process, and to familiarize the user with the logic behind ADVISOR.

It is important to realize that, various combinations of direct and indirect costs can lead to a multitude of options (combinations of direct costs and resources) for resolving the problem. A simple example will be presented to illustrate this point.

Suppose that the Up-front Cost (\$142,978) and Annual Cost (\$28,279) for the CBT delivery option are both too high. Is there anything that the user can do? One option would be to substitute direct costs by existing resources within the organization. For example, would it possible to develop the course internally rather than externally? In addition to switching the cost from direct to indirect, the average daily cost of the developer will most likely be reduced, from \$500 to \$350, in this case. The results of these changes are a reduction of Up-front Costs to \$119,278 and Annual Costs to \$20,378 from \$28,279, as shown below. Of course, this also implies that additional resources (35.7 weeks per year) will be required for developing the tools.

The screenshot displays the ADVISOR 3.5 software interface. The title bar reads "ADVISOR 3.5 - Module Summary : Technology in Distance Learning <Knowledge Skills Group>". The main window has a menu bar with options: Summary, Off-the-Shelf CBT, Audio Tapes, On-location, Print, Internet-Simulated Classroom, Video Conferencing, and Classroom. The "Off-the-Shelf CBT" option is selected.

The interface is divided into two main sections: "Delivery Method" and "Supplements".

Delivery Method: "Off-the-Shelf CBT" is selected.

Supplements: "Not available" is displayed.

Below these sections, there are two tables of data:

Effectiveness		Resources [weeks per year]	
Effectiveness	83 %	Trainers	3.7
Up-front Investment	\$119,278	Developers	35.7
Annual Costs	\$20,378	Administrative	11.5
Direct Savings	\$438,616	Facilities [days per year]	0.0
Indirect Savings	\$363,561		
Savings over Life of Module	\$802,177		

At the bottom of the window, there are buttons for "Total Cost", "Charts", and "Recommendations". Below these is a "Help..." section with icons for Tutor, Overview, Help, Save, Export, Print, Note, Tips, and Menu.

Chapter 12

Course Summary

12.1 Introduction

Let ADVISOR powerfully combine, manipulate and compute information that can help you make a decision with confidence. Once the analysis for each learning group has been completed, the viability of using various combinations of delivery options can be studied.

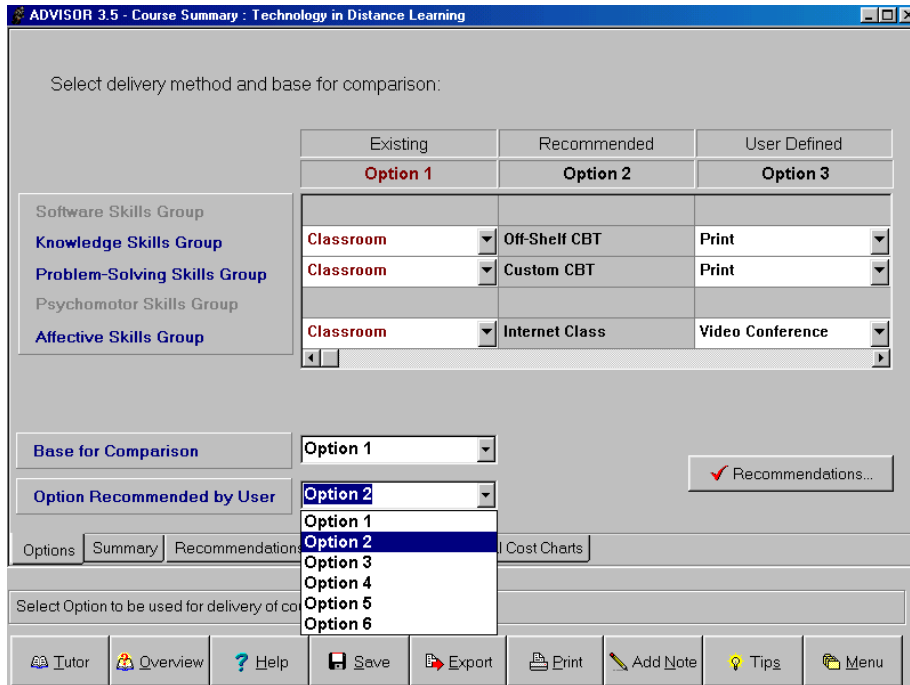
In this module, the costs for the entire course and resources required to implement the training are computed by combining plausible delivery options for each learning group – i.e., Software, Knowledge, Problem Solving, Psychomotor and Affective. In addition to the option recommended by ADVISOR, the user may define and compare the costs of using up to five different combinations of delivery methods – at a time.

Once you have examined various combinations, you can select the option that best meet your needs. Moreover, you can quickly generate a report and produce charts to support and document your decision.

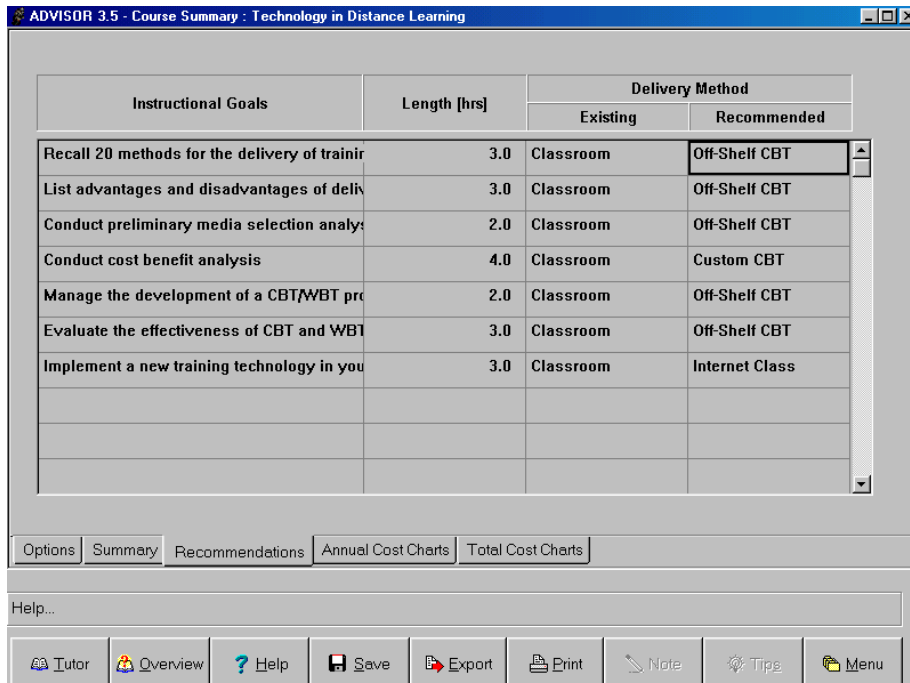
12.2 Selecting the Right Blend of Delivery Methods

Alternate delivery options can be selected and examined for each learning group – Knowledge Skills, for example. In the first column "Existing", indicate methods presently used for the delivery of training. If it is a new course, then select methods that would most likely be used by the organization, if any. The most economical blend of delivery options that meets your needs is presented under the second column "Recommended". You may define up to four more combinations under Options 3 to 6 and compare the results to the Existing and Recommended options.

Next, indicate the option to be used as a Base for Comparison. Option 1, methods presently used for the delivery of training, is presented by default. If you wish to compute the savings and the break-even point relative to other combinations, click on the arrow down button to display the options, drag the mouse to highlight the required option and release. Once you have examined various combinations, you can specify the option that best meets your needs under the Option Recommended by User cell. Additional remarks, notes or observations that could further justify your decision can be added by clicking on the Recommendations button.



For a closer view of the delivery option recommended for each instructional goal, click on the Recommendations tab.



12.3 Comparing Alternate Delivery Options

ADVISOR presents the results from different perspectives to help you gain a better understanding of the impact of various options on the organization. Results in tabular format are presented under the Summary tab, include:

- Break down of costs between direct and indirect
- Up-front investment required to implement each delivery option
- Distribution of costs between trainees, instructors, development, facilities, maintenance and hardware.
- Savings that may result from using one delivery option in comparison to the alternative specified under Base for Comparison.
- Number of months required to recover initial investment – in comparison to alternative specified under Base of Comparison.
- Resources required to develop, deliver and manage the training.

ADVISOR 3.5 - Course Summary - Technology in Distance Learning

Direct/Indirect | Investment | Costs Distribution | Savings | Break Even | Resources

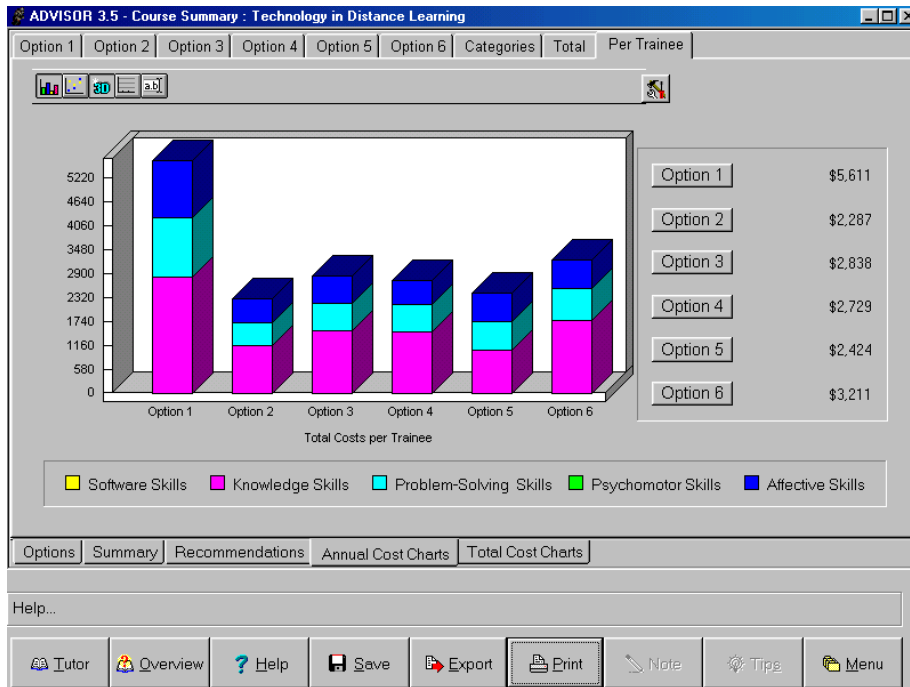
	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Direct Cost	\$884,946	\$354,242	\$312,635	\$294,176	\$341,551	\$417,118
Indirect Cost	\$1,596,545	\$648,277	\$993,413	\$1,040,891	\$761,863	\$745,156
Total Cost	\$2,481,491	\$1,002,519	\$1,306,048	\$1,335,067	\$1,103,414	\$1,162,274
# of Trainees	450	450	450	450	450	450
Cost per Trainee	\$5,514	\$2,227	\$2,902	\$2,967	\$2,452	\$2,583

Options | Summary | Recommendations | Annual Cost Charts | Total Cost Charts

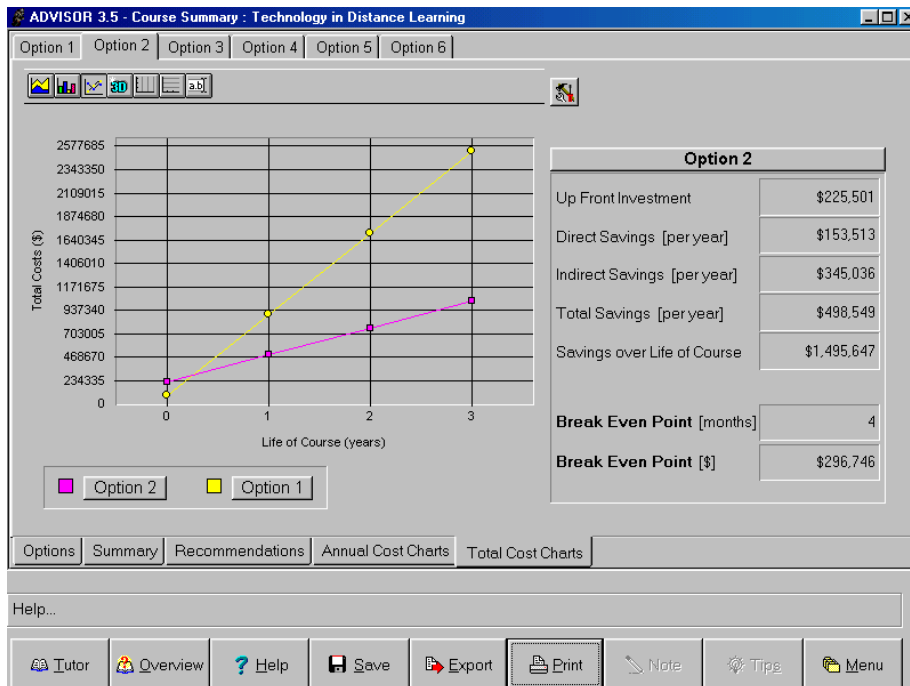
Total direct costs of the course.

Tutor | Overview | Help | Save | Export | Print | Add Note | Tips | Menu

A graphical representation of the cost contribution of each category (i.e., trainee, instructor, development, facility, maintenance and hardware) is presented under the Annual Cost Charts along with the average cost per trainee.



A graphical representation of the actual cost of each option over the life of the course is presented under the Total Cost Charts. Savings and break-even point that may result from using one delivery option in comparison to the alternative specified under Base of Comparison are also shown.



Chapter 13

ADVISOR Wizards

13.1 Introduction

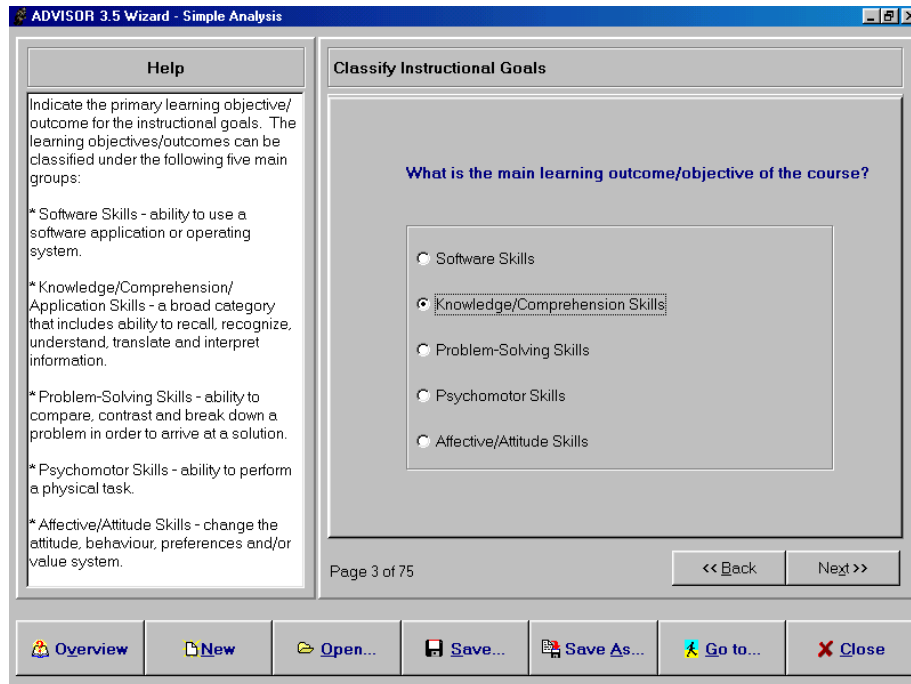
In addition to the Detailed Analysis, courses with comparable instructions goals (i.e., belong to a single learning group, Knowledge Skills, for example) can be analyzed using one of the following Wizards:

ROI Analysis (22 questions)	Mainly used to estimate the costs of using alternate methods for the delivery of training. It does not take the effectiveness of the delivery options into consideration.
Media Selection (35 questions)	Mainly used to determine the most effective method for the delivery of training. It does not take cost into consideration.
Quick Analysis (54 questions)	Recommends the most economical delivery method that meets your needs. Both the feasibility as well as the cost are taken into consideration.
Simple Analysis (79 questions)	Similar to Quick Analysis, but takes more factors into consideration in making the recommendation.

Moreover, to facilitate the collection of data from Course managers or clients, a standalone version of the Simple Analysis Wizard is included with ADVISOR and can be distributed to clients free of charge. Data collected from the Standalone Wizard can be imported and analyzed by ADVISOR.

13.2 How Does the Data Collection Wizard Work?

A course manager or a client may use the Data Collection Wizard to input data relevant to a specific course. The data for each course is saved in a separate file or a record. If the course deals with multiple learning objectives (Knowledge and Psychomotor Skills, for example) then the training material should be divided into separate modules (theory and hands-on, for example) and the data for each module should be saved in a separate file (or record). Of course, if you are dealing with complex topics, then the use of the Detailed Analysis option, is recommended.



The Data Collection Wizard is very simple to use. The questions are presented one after the other and the user can easily jump between the screens. Seventy-nine (79) multiple-choice and fill-in-the-blanks questions are presented in total. On-line help is also provided to assist the user in responding to the questions. Once again we should point out that the user does not have to respond to all questions. ADVISOR bases the analysis on data provided. Few questions related to course title, user name, instructional goals and learning objectives are required, and ADVISOR will prompt user to complete before data is saved.

To minimize input, only data related to Feasibility and Training Costs Analysis is collected and a number of assumptions in the Training Cost Analysis are made. For example, travel and per diem costs for both trainees and instructors are assumed to be equal. Therefore, once data is imported into ADVISOR, all data should be reviewed, verified and edited to maintain the reliability and integrity of the analysis.

13.3 Standalone Data Collection Wizard

The Standalone Data Collection Wizard is included under the “StandAlone Wizard” directory under the ADVISOR directory on your hard disk. It is ready for distribution. That is, the 11 files can be copied on a single floppy disk (approximately 1.1 MB in size) and distributed to course managers or clients. Course managers or clients can easily install the ADVISOR Data Collection Wizard by double clicking on the Setup.exe program and following the systems instructions.

Data for each course is saved on a separate file with a “.awz” extension. Files can be imported into ADVISOR 3.5 using the Open file button in the main menu, and selecting the Wizard (*.awz) file type.



Appendix A

Delivery Methods

A brief description of methods considered by ADVISOR for the delivery of training is presented.

Print

Courses delivered in a self-study print format, such as correspondence courses. Access to instructor or subject matter expert may be available through telephone, mail, E-mail or other means, but not in real time.

Print based instructions provide cost-effective solutions when the course material deals with knowledge and skill; is suited for self based learning (i.e., does not require real-time interaction between instructor and trainees); requires frequent updating and is targeted to a group of highly motivated trainees that possess good reading skills.

Audio Tapes

Courses delivered on audio tapes. These include language and music training; or motivational sessions, for example. Access to instructor or subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Audio Tape based instruction provides cost-effective solutions when audio is required for the delivery of training; course material is suited for self based learning (i.e., does not require real-time interaction between instructor and trainees) and is targeted to a group of highly motivated trainees that possess good listening skills.

Video Tapes

Courses delivered on video tapes. Applications include demonstration of a process, procedure or situation, for example. Access to instructor or subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Video Tape based instruction provides cost-effective solutions when both audio & video are required to deliver a concise message; material is suited for self based learning (i.e., does not require real-time interaction between instructor and trainees) and is targeted to a group of highly motivated trainees.

Classroom

Courses delivered by one or several instructors and/or subject matter experts in a central location (headquarters or designated school, for example).

Classroom (instructor-led) training provides cost-effective solutions when the course requires real time interaction between instructor and trainees, involves hands-on exercises or high degree of interpersonal skills and is targeted to a small group of local trainees.

On-Location Seminar

Courses delivered by one or several instructors and/or subject matter experts on-site or in various regions.

On-Location seminars provide cost-effective solutions when the training material requires real time interaction between instructor and trainees, involves hands-on exercises or high degree of interpersonal skills and is targeted to a small group of trainees spread over a large geographic area.

Off-the-Shelf CBT

Off-the-Shelf Computer Based Training (CBT) are interactive courses on generic subjects (such as WordPerfect or Time Management) available on diskette or CD-ROMs. Access to an instructor or subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Off-the-Shelf CBT provides cost-effective solutions when dealing with a generic subject that is suited for self based learning (i.e., does not require real-time interaction between instructor and trainees) and is targeted to a group of highly motivated trainees that possess good reading skills.

Simple CBT [Low]

Simple Computer Based Training (CBT) are courses with limited interactivity, delivered through a computer. Access to an instructor or subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Simple CBT provides cost-effective solutions when the material is simple (overview of an organization, for example); suited for self-based learning (i.e., does not require real-time interaction between instructor and trainees) and is targeted to a large group of highly motivated trainees with good reading skills.

Customized CBT [Medium]

Medium Computer Based Training (CBT) are custom-built courses that are highly interactive with no audio or video, delivered through a computer. Access to an instructor or subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Medium CBT provides cost-effective solutions when the material is complex, specific to the organization (financial system, for example); suited for self based learning (i.e., does not require real-time interaction between instructor and trainees) and is targeted to a large group of highly motivated trainees with good reading skills.

Multimedia CBT [High]

Multimedia Computer Based training (CBT) are custom-built courses, that are highly interactive, require audio and/or video, and are delivered on a multimedia computer. Access to an instructor or subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Multimedia CBT provides cost-effective solutions when the material is complex, specific to the organization (how to regulate a high voltage panel, for example); suited for self based learning and is targeted to a large group of trainees spread over a large geographic area.

Simulators

Simulators provide training through realistic simulation of the working environment (i.e., simulation that gives the look and feel of the working environment) such as, flying an airplane.

Simulators provide cost-effective solutions if real equipment is required for the delivery of training; but the use of real equipment is dangerous, destructive and/or not available.

Virtual Reality

Virtual Reality provides training through realistic simulation of the working environment (i.e., simulation that gives the look and feel of the working environment) such as, performing repairs in outer space.

Virtual Reality provides cost-effective solutions if real equipment is required for the delivery of training; but the use of real equipment is dangerous, destructive and/or not available.

Intelligent Tutorial [Expert Systems]

Intelligent Tutorials (or expert systems) are highly interactive courses that analyze a complex situation/problem and offer a solution (effective methods for the delivery of training, for example). Intelligent Tutorials simulate the actions of a subject matter expert. Access to a subject matter expert may be available through the telephone, mail or E-mail, but not in real time.

Intelligent Tutorials provide cost-effective solutions when training deals with problem solving or trouble shooting; suited for self-based learning and is targeted to a large group of trainees.

Embedded Training

Embedded Training are training modules on a specific sub-skill. They are incorporated in software programs or tools that use a computer and a screen. Training is delivered on-the-job when needed. Access to a subject matter expert may be available through the telephone or E-mail, but not in real time.

Embedded Training provides cost-effective solutions for refresher training or upgrading of knowledge when targeted to a large group of trainees spread over a large geographic area and are familiar with the content (teaching WordPerfect 6.1 new features to WordPerfect 5.0 users, for example).

Hypertext

Hypertext provides quick access to specific information (policy, procedure, rule or regulation, for example). Hypertext is mainly used as a reference tool, and does not include audio or video. Access to subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Hypertext provides cost-effective solutions for refresher training or upgrading of knowledge (new tax rules, for example); when targeted to a group of highly motivated trainees that possess good reading skills and are familiar with the content.

Hypermedia

Hypermedia provides quick access to specific information in a large body of knowledge (historic events, for example). Hypermedia is mainly used as a reference tool, and includes audio and/or video. Access to subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

Hypermedia provides cost-effective solutions for refresher training or upgrading of knowledge (view picture and instructions on products, for example); when targeted to a large group of motivated trainees that possess good reading skills and are familiar with the content.

Electronic Performance Support Systems [EPSS]

Electronic Performance Support Systems (EPSS) are tools that enhance the performance of employees on-the-job. They include expert (intelligent) systems, embedded training, hypertext, hypermedia or a combination. Access to subject matter expert may be available through the telephone, mail, E-mail or other means, but not in real time.

EPSS provides cost-effective solutions when applying learned concepts is cumbersome (involves computations and generating reports, for example); and impacts a large group of employees.

Audio Conferencing

Courses that are delivered over the telephone. Resembles conference call with special bridging equipment that links several sites. Audio Conferencing can be supplemented by on-site visual media such as printed material. The material should be distributed to each site prior to the conference call.

Audio Conferencing provides cost effective solutions when discussion and consensus building is a component of the training (introduce new policy and obtain feedback, for example); and trainees are spread over a large geographic area.

Computer/Data Conferencing

Courses that are delivered in real-time using telephone lines and computers. Computer conferencing may also be delivered over the Internet. Computer/ Data Conferencing allows instructor and trainees to simultaneously share text and graphical information; and discuss issues in an electronic classroom setting.

Computer/Data Conferencing provides cost-effective solutions when real-time interaction between the subject matter expert and trainees is needed; and trainees are spread over a large geographic area.

Video Tele-Conferencing

Courses delivered in real-time using phone lines/cable/satellite and cameras. Video Tele-Conferencing may also be conducted over the Internet. Cameras are only installed at instructor's site. That is, trainees can view material, hear and see the instructor, but the instructor can only hear trainees. In contrast, two-way video conferencing allows instructor and trainees to see and hear each other.

Video Tele-Conferencing is cost-effective for short courses that require real-time interaction between subject matter expert and trainees spread over large geographic area.

Video Conferencing

Courses that are delivered in real-time using phone lines/cable/satellite and cameras. Video Conferencing may also be conducted over the Internet. Cameras are used at all sites to provide full audio and video interaction between instructor and trainees.

Video Conferencing provides cost-effective solutions for short courses that require face-to-face interaction between the subject matter expert and trainees spread over a large geographic area.

Internet - Simulated Classroom

Refers to synchronous courses delivered over the Internet/Intranet in a simulated classroom setting (i.e., mimic classroom environment through the use of video conferencing, simulated hand-raising, shared applications annotation and a shared blackboard).

Internet - Simulated Classroom provides cost-effective solutions when real-time interaction between subject matter expert and trainees is required; and trainees are spread over a large geographic area.

Off-the-Shelf WBT

Off-the-Shelf Web Based Training (WBT) are interactive courses on generic topics (such as Time Management) available through Internet or Intranet. Access to instructor may be available through E-mail, but not in real time.

Off-the-Shelf WBT is cost-effective when dealing with a generic subject that is suited for self-based learning (i.e., does not require real-time interaction between instructor and trainees) and is targeted to a group of highly motivated trainees with good reading skills.

Simple WBT [Low]

Simple Web Based Training (WBT) are courses with limited interactivity, delivered over the Internet or Intranet. Access to instructor may be available through E-mail or other means, but not in real time.

Simple WBT are cost-effective when the content deals with a simple topic (overview of an organization, for example); suited for self-based learning (i.e., does not require real-time interaction between instructor and trainees), changes regularly, and targeted to a large group of highly motivated trainees with good reading skills.

Customized WBT [Medium]

Medium Web Based Training (WBT) are custom built, highly interactive courses with no audio or video, delivered over the Internet or Intranet. Access to instructor may be available through E-mail or other means, but not in real time.

Medium WBT are cost-effective when the content deals with a complex topic, specific to the organization (financial system, for example); suited for self-based learning (i.e., does not require real-time interaction between instructor and trainees), changes regularly and targeted to a large group of highly motivated trainees with good reading skills.

Multimedia WBT [High]

Multimedia Web Based Training (WBT) are custom-built, highly interactive courses with audio and/or video, and delivered on a multimedia computer using the Internet or Intranet. Access to instructor may be available through E-mail, but not in real time.

Multimedia WBT are cost effective when the material deals with a complex topic, specific to the organization (how to regulate a high voltage panel, for example); suited for self based learning and targeted to a large group of trainees spread over a large geographic area. High-speed connection is also required.