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**GUIDED APPROACH TO INSTRUCTIONAL DESIGN ADVISING  
(GAIDA): INSTALLATION AND OPERATION (VOLUME 1 OF 2)**

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## **PREFACE**

**This paper reports the results of work done as a portion of the project on the Advanced Instructional Design Advisor (AIDA). AIDA is a R&D project being conducted by the Armstrong Laboratory's Human Resources Directorate in response to an Air Training Command (ATC) Manpower, Personnel, and Training Need calling for improved guidelines for authoring computer-based instruction (CBI) (MPTN 89-14T).**

**Dr Dan Muraida is the AIDA project director and Dr J. Michael Spector conceptualized the idea of AIDA**

**The origin of the Guided Approach to Instructional Design Advising (GAIDA) is credited to ideas of Robert M. Gagné while he worked at Armstrong Laboratory as a National Research Council Senior Fellow (1991-1992). We would also like to acknowledge the substantial input of William A Dimitroff to the initial design of the software and to Steven W. Hanock and Patricia Jones (Summer Research Associates) for the design and creation of some of the lessons. Many other people in the Instructional Design Branch have contributed to the development of GAIDA; these are Dr Scott Newcomb, Capt Ann Reiners, Mr Dennis Gettman, Amn David Hatton, and Ms Monica Closna.**

**The GAIDA software (1992) is the property of the United States Government as represented by the Armstrong Laboratory. All rights except those noted below are reserved. Portions of the application are the copyright of Asymetrix Corporation.**

**This is Beta Test Version 1 of GAIDA (Guided Approach to Instructional Design Advising). This product is an exploratory research and development effort and is not warranted to be free of defects. Distribution is restricted to authorized Beta users which are limited to the DoD, DoD [sub] contractors, and any others duly authorized by the Air Force Armstrong Laboratory (AL/HRTC) to act as Beta users. Users agree that the United States Air Force and its representative agencies will not be held liable for special, collateral, incidental, or consequential damages in connection with or arising out of the use of this software. All Beta users will submit usage reports (e.g., specific information pertaining to bugs, usage, limitations, strengths, desirable modifications, etc.) to: AL/HRTC, Attn. Mr. Larry K. Whitehead, 7909 Lindbergh Drive, Brooks AFB, TX 78235-5352, DSN 240-2981, TEL (210) 536-2981, EMAIL: whitehead@alhrt.brooks.af.mil**

**Guided Approach to Instructional Design Advising (GAIDA):  
Installation and Operation of the GAIDA Software (Volume 1 of 2)**

**SUMMARY**

The need exists for simplification of the instructional design process (MPTN 89-14T). One approach is the idea that a novice can produce effective computer-based instruction by following appropriate guidance given through a computer-based system. Gagné (1988) contends that instruction consists of a set of events external to the learner that occur in a loosely invariant sequence. These events, called the "Nine Events of Instruction" (Gagné, Briggs, & Wager, 1992) are incorporated into a computer program called GAIDA (Guided Approach to Instructional Design Advising).

Volume 1 (Installation and Operation of GAIDA Software) introduces the concept of GAIDA and describes how to install and operate the software on an IBM compatible microcomputer. The GAIDA program provides instructional design guidance and uses example lessons to demonstrate how to use Gagné's nine events of instruction.

Volume 2 (How to Create GAIDA Compatible Lessons) describes how to create lessons in ToolBook® that are compatible with the guidance program.

## **1. INTRODUCTION**

The Guided Approach to Instructional Design Advising (GAIDA) grew out of the Advanced Instructional Design Advisor (AIDA) project [Spector, 1993]. AIDA addresses the more general issues involved in automating instructional design, development, and delivery. GAIDA is focused entirely on the automation of instructional design advice or guidance.

This document is a user's guide for the GAIDA software, a prototype program for providing guidance for creating effective computer-based instruction (CBI). It is not intended to cover technical or theoretical aspects of instructional design, which is described in Spector, Gagné, Muraida, and Dimitroff (1992). The initial evaluation of GAIDA is reported in Gagné (1992). It does cover installation, execution, and operation of the GAIDA software.

GAIDA was built using Asymetrix ToolBook® Ver. 1.5 and is based on professor Robert M. Gagné's ideas [Gagné, 1985]. GAIDA was initiated by Gagné while he was at Armstrong Laboratory as a National Research Council Senior Fellow (1991-1992). The program guides a novice instructional designer through the steps needed to produce quality CBI. The guidance consists of an elaboration of Gagné's nine events of instruction which are as follows:

1. Gain attention.
2. Describe the goal.
3. Stimulate the recall of prior knowledge.
4. Present the material to be learned.
5. Provide guidance for learning.
6. Elicit performance.
7. Provide informative feedback.
8. Assess performance.
9. Enhance retention and transfer of knowledge.

These events are elaborated in terms of completely worked examples or cases. There are four of these cases in GAIDA representing a variety of instructional objectives. The cases are complete lesson modules and can be viewed without the guidance.

The basic assumption is that instructional design guidance is context sensitive (i.e., varies with different objectives and subject types), and, as a consequence, should be presented in context.



## 2. GUIDANCE

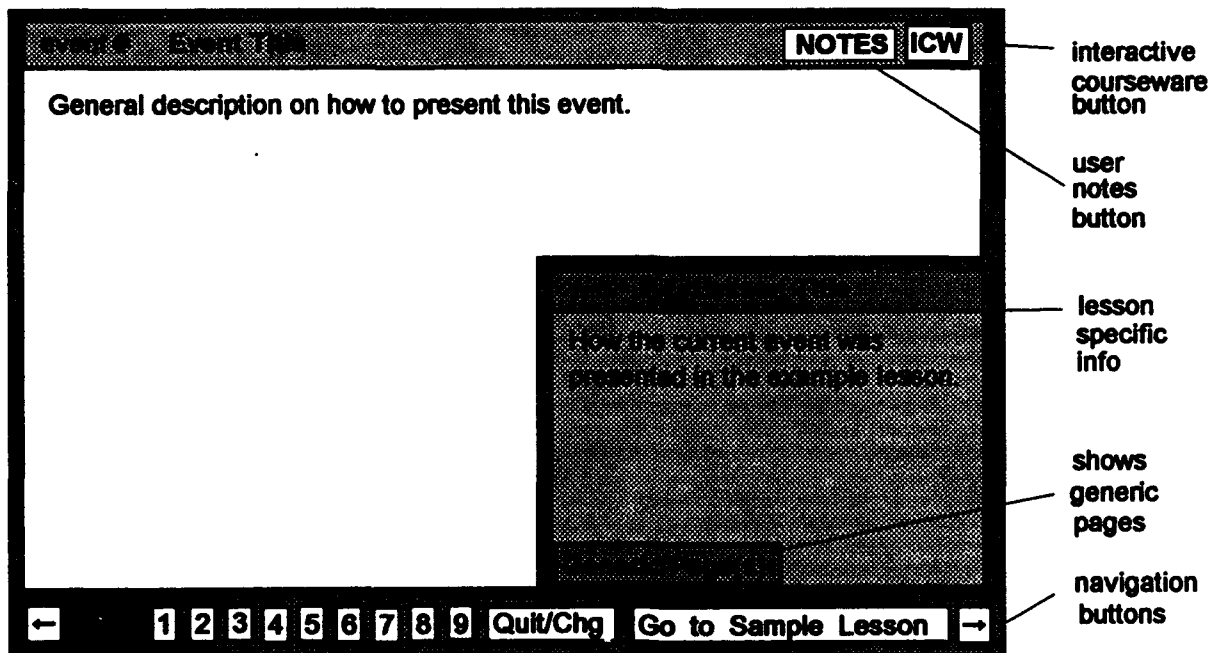
Instructional design guidance is provided via the GAIDA.TBK program. The GAIDA program leads the novice instructional designer (the assumed user) through Gagné's nine events of instruction. To execute (run) GAIDA, see Appendix A (5.3).

On entry to the GAIDA program, the user is presented the title/credits pages followed by a brief introduction which includes a list of Gagné's nine events of instruction.

Next is a list of the learning objectives and cases available. The user is allowed to select one of them along with its corresponding example lesson or case. The introduction may be skipped by using the Skip Intro button on the bottom of the credits page.

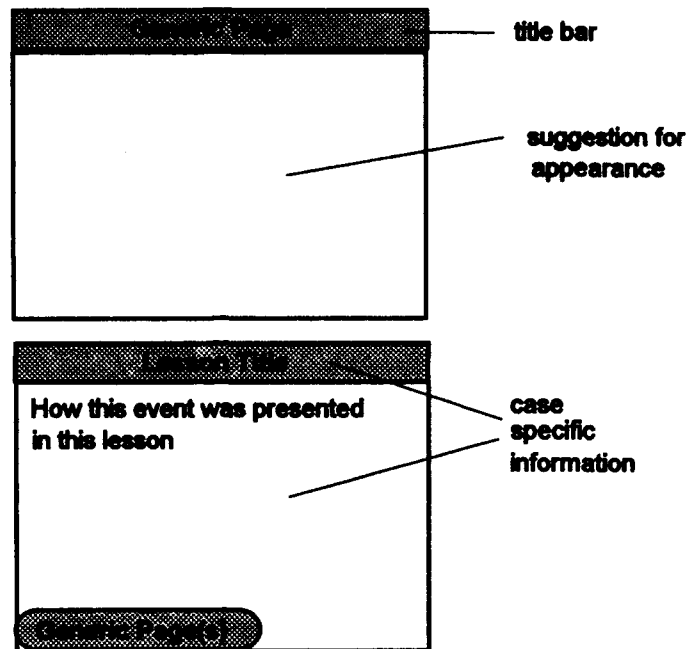
The user is then shown a definition of the learning objective and the expected outcome of the selected example.

The program then proceeds through an elaboration of each of the nine events in general and in the context of the selected case. The user may go to the example lesson for an example of how that event was used to present instruction. Event buttons allow the more experienced instructional designer to look at only those events of instruction of interest to him/her. A button on the top right of each event page will provide additional interactive courseware (ICW) information pertinent to that event. A NOTES button, just to the left of the ICW button, will allow the user to make notes. These notes may be used as an initial lesson storyboard and can be printed or saved on exit from GAIDA. The general appearance of an event page is shown below:



The user is expected to read the general description on how to present this event and then read the lesson specific description.

Clicking on the Generic Page(s) button causes a small generic page to appear. This page contains examples of appearance or suggested content. After a brief pause, this page is replaced by the description of how this event was presented in this lesson.



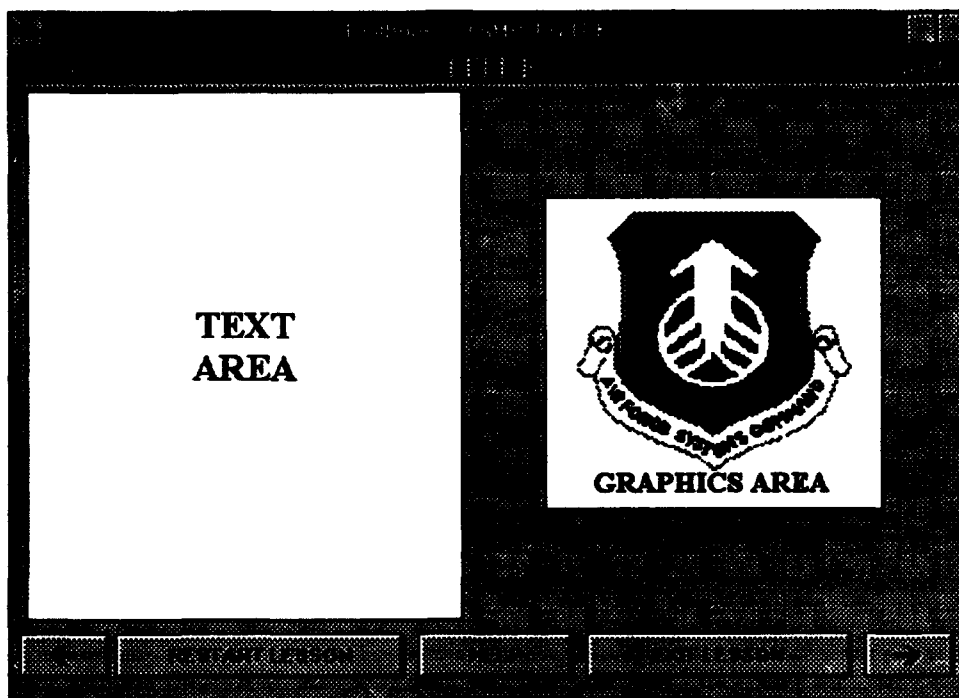
The user may repeat the learning objective selection and view new example lessons by clicking on the Quit/Chg button and selecting Another.

### 3. LESSONS

Each GAIDA lesson was designed using Asymetrix ToolBook 1.5. The lesson can be run as a stand-alone lesson from GAIDALSN.TBK or as an example to be viewed from within the guidance program GAIDA.TBK.

#### 3.1. GENERAL INFORMATION

Lesson pages have the following general appearance:



Where: in the TITLE bar

**event** = Which of the 9 events of instruction is represented on this page (not the #, but the text).

**TITLE** = Lesson title.

**pg** = Page number (optional, but helpful).

**TEXT** = Any text.

**GRAPHICS** = Any picture, drawings, diagrams, animation, etc.

Note: Text and graphics do not need to be in these exact positions.

Buttons perform navigation. The Exit Lesson button is replaced by the Return to Guidance button when the lesson is run as an example from GAIDA.

### 3.2. LIST OF SAMPLE LESSONS

Currently there are four sample lessons available. Others are being planned and will be added as they are produced. Beta users are encouraged to add to the case base and submit lessons to AL/HRTC for validation and inclusion.

<u>Lesson Name</u>	<u>Learning Objective</u>	<u>Description</u>
NAVYRANX	Identification	Navy Officer Rank Identification
RESISTOR	Classification	Classifying Electronic Resistors
F16GUN	Procedure (w/checklist)	F-16 Gun Checklist
PULMONRY	Procedure (from memory)	Pulmonary Function Test

#### **4. REFERENCES**

Gagné, R.M. (1985) The Conditions Of Learning and Theory of Instruction (Fourth Edition). New York, NY: Holt, Rinehart, and Winston.

Gagné, R.M. (1992) Tryout of an Organizing Strategy for Lesson Design: Maintenance Procedure with Checklist (AL-TP-1992-0016). Brooks AFB, TX: Armstrong Laboratory, Human Resources Directorate.

Gagné, R.M., Briggs, L.J., and Wager, W.W. (1992) Principles of Instructional Design (Fourth Edition). FL: Harcourt Brace Jovanovich.

Gagné, R.M. and Driscoll, M.P. (1988) Essentials of Learning for Instruction (Second Edition). Englewood Cliffs, NJ: Prentice Hall.

Spector, J.M., Gagné, R.M., Muraida, D.J., and Dimitroff, W.A. (1992) Intelligent Frameworks For Instructional Design. Educational Technology, 32(10), 21-28.

Spector, J.M., Polson, M.C., and Muraida, D.J. (1993) Automating Instructional Design: Concepts And Issues. Englewood Cliffs, NJ: Educational Technology Publications.

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## **5. APPENDIX A - INSTALLATION AND OPERATION**

### **5.1. REQUIREMENTS**

- Intel 80386/80486 or compatible personal computer.
- DOS 4.0 or higher.
- Microsoft Windows® 3.0 or higher.
- 4 Mb RAM, or more.
- 5 Mb hard disk storage.
- VGA (640x480 or higher).
- Mouse.
- Asymetrix ToolBook (1.5 or higher) or Runtime ToolBook (provided).

Note: Full Toolbook is required if the user wishes to add new cases (example lessons) or modify the guidance. Full ToolBook is not provided by Armstrong Laboratory.

### **5.2. INSTALLATION**

Upon request, the GAIDA system will be supplied to the user. It comes on two 3.5", 1.4 Mb floppy disks and is accompanied with an installation guide. Runtime ToolBook, which is allowed to be distributed free of charge, is on the first disk and GAIDA is on the second.

Each disk contains its own INSTALL.BAT file to install Runtime ToolBook or GAIDA on the user's hard drive.

Carrying out the instructions in the guide will result in the following:

The user's hard drive will contain three new directories; TOOLBOOK, GAIDA, and AA.

The PATH in the user's AUTOEXEC.BAT file has been modified to include the TOOLBOOK and GAIDA directories.

The WIN.INI file has been modified to allow ToolBook and GAIDA to run.

GAIDA, GAIDALSN, NAVYRANX, RESISTOR, PULMONRY, and F16GUN have been installed as program items in a new program group GAIDA.

Note: AAPLAY® is a program supplied by Autodesk™ (runtime distribution is free). The program plays animations and displays pictures. It is used by some of the GAIDA programs to provide limited animation. The program was copied to the AA directory during GAIDA installation.

### **5.3. EXECUTION OF GAIDA**

Note: The ToolBook files must be in the TOOLBOOK directory, the GAIDA files in the GAIDA directory, and AAPLAY.EXE in the AA directory. These directories are created directly off the root directory.

#### **5.3.1. FROM TOOLBOOK**

1. Start Windows;
2. Double click the GAIDA program group icon ;
3. Double click on the GAIDA program item icon (to run the guidance program)  
or  
Double click on the GAIDALSN program item icon (to run stand alone lessons).

#### **5.3.2. FROM DOS**

Two batch files are provided to allow the user to run GAIDA from DOS. These files were copied to the users hard drive during GAIDA installation.

**GAIDA.BAT**     Runs the GAIDA tutorial program.

**GAIDALSN.BAT**     Allows the user to select and run a lesson as a stand-alone ToolBook program.

To run, transmit either of the following statements from the DOS command prompt:

**GAIDA**  
or  
**GAIDALSN**

The TOOLBOOK and GAIDA directories must be in the "path". This should have been done by the GAIDA installation.

**Warning: Do not attempt to run either of these batch files from within the DOS Windows application.**

#### **5.3.3. INFO FOR KNOWLEDGABLE WINDOWS USERS**

GAIDA and GAIDALSN are installed as program items in the GAIDA program group. If the user already has a ToolBook program group, then the user might want to move the GAIDA and

**GAIDALSN** program items to it and delete the **GAIDA** program group. Another alternative would be to move them to a "Windows Applications" program group.



## 6. APPENDIX B - GENERAL INFORMATION

### 6.1. MOUSE DRIVEN

GAIDA is mouse driven. A mouse is a small hand-held device connected to your computer. You move (slide) the mouse around on its pad and a pointer (cursor) on the screen moves accordingly. The mouse also has buttons, which when pressed can be used to cause actions to be performed.

### 6.2. BUTTONS

A button is an object you click to cause an action to be performed. The button usually contain label describing the action. Most buttons appear as a rounded rectangle with shading; however, there are other forms. To click a button, move the pointer over the button, then press and release the left mouse button.

Present at the bottom of the guidance pages are buttons which allow the user to navigate the pages of the guidance book and to navigate between the guidance book and the sample lessons.

 Event    

Where: 

"Left" - return to the previous page.

Event  to 

Go to specified event of instruction page.



Terminates program (leaves GAIDA) or allows user to select another example.




Goes to the corresponding event page in the example lesson.



"Right" - go to next page.

Present at the top right of the guidance event pages is a button  which will provide additional interactive courseware (ICW) information appropriate to the event under discussion.

To the left of the ICW button is the  button. This button allows the user to make notes on such things as how to present his lesson. On exiting GAIDA the user has a choice to print or save these notes.

Present at the bottom of the sample lesson pages are buttons which allow the user to navigate the pages of the sample lesson book and to navigate between the sample lesson and the guidance book.

or

Where:

"Left" - goes to prior page.

Returns to page 2 of this lesson (does not work if run as an example lesson from the guidance program).

Provides optional help information.

Exit - terminates program (this button present when run as a stand alone lesson).

or

Returns to the guidance program (this button present when lesson was run as an example from the guidance program).

"Right" - goes to next page.

Note: Lesson buttons do not have to appear exactly where shown; however, these are the buttons basic to a GAIDA lesson and all should appear. The  and  buttons are actually one button whose function and label changes according to whether the lesson is being run as a stand alone lesson or as an example for the guidance program.

### 6.3. HOT WORDS

A hotword is a piece of text that can perform like a button; thus, a hotword can be used to navigate a book, display additional information, show hidden objects, etc. The hotword text is usually in a different font, such as bold, italic, or underlined so that the user can recognize it. Also the pointer changes its shape to a small picture frame when it is over hotword text. The function that the hotword performs is activated by clicking the left mouse button while the pointer is over the hotwords. In the GAIDA programs the only indicator of hotwords is the pointer shape change.

### 6.4. SCROLL BARS

Scroll bars (see page far right) indicate that a field contains more text than it can display at a time. To move the text (scroll) so that you can see all of it: position the pointer on either the up or down arrow, then hold down the left mouse button, the text then moves up or down in the field.



## **6.5. DRAGGING AN OBJECT**

Occasionally the program will indicate that an object may be moved. This is performed by "dragging" the object. To drag: place the pointer upon the object: then, while holding down the left mouse button, moving the pointer (by moving the mouse), moves the object.