



Committee

P.O. Box 427, Sugar City ID 83448-0472 – ph. 208/356-1532, fax 208/356-2390

AICC

GUIDELINES and RECOMMENDATIONS

AGR 012
28 June 2005

VERSION
1.0

TRAINING DEVELOPMENT CHECKLIST

Purpose:

To assist an airline training organization in identifying vital aspects of a quality CBT/Training program. The AICC (Aviation Industry CBT Committee) has published several documents that recommend standards and common components of a quality training program. This document has been prepared to assist airlines and training organizations in using AICC documents, helping to define quality CBT/Training materials. When looking at a CBT development project (or any training program), key elements of training must be contained in the program.

Use:

This document should be used to help an organization identify the components or elements that they need in their training program. It may be used to help define a Request for Proposal from a possible training developer. It may be used to validate existing training programs to ensure they meet the needs of the organization and the students. It may be used to help define the budget requirements for a proposed development project. You can use it as an attachment for a Request for Quote or Proposal.

To use the checklist, place a number in the “Priority” column. Use a scale of 1 to 5 to prioritize your requirement, with 1 being the highest and 5 the lowest. This will help you define the training system requirements and help you define your program around your budget. You may not need all items listed and can leave some of the fields blank. Refer to the full AICC documents for detailed information. Ensure your training developer complies with the referenced AICC documents. When using this document, you may want to refer to the AICC Glossary of Terms.

NOTE: Referenced AICC documents may be found on the AICC website at <http://www.aicc.org>.

*Caveats...
Review Cycle*

The data contained in this document has been collected by the AICC as an informational

© 2003 AICC
All Rights Reserved



Instructional Systems Design (ISD)

All training programs should start by using standard Instructional Systems Design (ISD) processes. These processes are used to define, design, and develop your training programs. This section should be used to help identify the ISD components that may be used in your training program. If you are building the training program within your organization, this can be used to ensure you follow the proper processes. If you are contracting with a training vendor, use this document to help you identify the components you need to see in the proposal and throughout the project. See AICC document CRS003 "Hierarchy of CBT Terms for AICC Publications" pertaining to hierarchical structures in courseware.

The results of using this checklist should be an outline for a Requirements Document, one that will help you create or define the major objective(s) and components for your training program.

Priority 1 – 5	Requirement	Notes
	Analysis	
	Terminal Objective - Overall Training Goal	Ultimate goal and purpose of the training program
	Define target audience	Student analysis – summary of roles, jobs, responsibilities, type and number of individuals to train
	Roles & Responsibilities	
	Experience Levels	
	Educational background	
	Identify job tasks that will be trained	Task analysis
	Objectives to cover tasks	Objective analysis -
	Test items to evaluate the objectives	Test Item analysis
	Define required types of media to teach objectives	Media analysis
	Identify schedule requirements	Top level course development schedule
	Define budget considerations/range	Financial review
	Define authoring system	Identify the course development tools and/or program
	Design	
	Define course structure	Hierarchical structure of the course
	Determine course delivery method	
	Learning Center distribution via LAN	



AGR 012 (Version 1.0)

	CD-ROM distribution for laptop and/or home usage	
	Internet connected for distribution	
	Internet connected for course	
	Design CBT/media layout	
	Screen layout	Define appearance of various screens
	Introduction/setup screen	
	Instructional/Data screen	
	Test items screens	Various types of test items – multiple choice, short answer, matching, completion, etc.
	Summary screens	
	Menu screens	
	Student login screens	
	Feedback screens/messages	
	Use AICC compliant icons (see icon list)	See checklist and AGR009 Icon Standards
	Develop	
	Create course materials	Various components of the course created and stored in separate databases – defined as data elements
	Graphics	Graphics database
	Text	Text database
	Photos	Photo database
	Video	Video segment database
	Audio files	Audio clips database
	Simulation segments	Programs or code for simulations
	Program code	Sequence of materials and roadmap through the course
	Setup development schedule	
	Define review process	Who is responsible for acceptance of course materials
	Subject Matter Expert(s) – SME	Identify responsible individual who will be available throughout program
	Instructional Designer	Responsible for “instructional integrity” of course materials
	Program/Project Manager	Responsible for overall program development and schedule
	Set time for review process	Limit amount of time reviews are conducted (3 to 10 days)



AGR 012 (Version 1.0)

	Evaluation	Establish some guidelines defining what makes a successful program
	Evaluate training materials against objectives	
	Evaluate students against objectives	
	Evaluate training materials for consistency & quality	



AGR 012 (Version 1.0)

Hardware & Software Requirements:

AGR002 Courseware Delivery Stations: Hardware - This document contains recommendations for the acquisition of Computer Based Training (CBT) student delivery systems, also referred to as the "platform." The platform includes computer, monitor, operating system, and peripheral devices. This AGR contains both hardware-related recommendations and software-related recommendations. The objective of the recommendations is to enable you to assemble a training delivery system with the ability to deliver the widest range of aviation CBT courseware. The type and delivery method of the training course need to be considered when defining the delivery platform requirements.

Desktop Hardware Recommendations:

Priority 1 – 5	Requirement	Notes
	Pentium 4, 1GigHz MMX CPU or better	Latest model available
	Minimum 128Mbyte memory	More RAM may be required for running simulations & video segments
	20" Multi-sync Monitor	
	Minimum 1024x768 resolution with 32bit, 65Meg colors	
	Local Harddisk drive	50 Gbytes recommended (optional if networked workstations are used)
	MPC III 32 bit Audio system	
	MPC III CD-ROM	
	Network card compatible with LAN	If required
	High Speed back-up device	CD-RW, DVD RW, etc.
	Mouse or other pointing device	Trackball, touch screen, etc.
	Video Card – AGP 16Meg	More memory is recommended when displaying simulations
	DVD Player	
	Windows 2000/NT/XP	Operating system should match your requirements
	Internet Browser	Microsoft Internet Explorer recommended



AGR 012 (Version 1.0)

Laptop Hardware Recommendations:

Priority 1 – 5	Requirement	Notes
	Pentium III 750MHZ MMX CPU or better	Latest model available
	Minimum 128Mbyte memory	More RAM may be required for running simulations & video segments
	Minimum 1024x768 resolution with 32-bit, 65Meg colors	
	Active Matrix monitor	
	Local Harddisk drive	30Gbyte or larger
	Integrated Audio	
	CD ROM/DVD	Available systems have DVD player with CD-ROM Writer in one unit
	Network card compatible with LAN	If required
	High Speed back-up device	CD-RW, ZIP Drive, etc. (optional)
	Mouse or other pointing device	Touchpad, eraser mouse, etc.
	Modem	Minimum 56 Kbaud or faster (DSL connection)
	DVD Player	(Optional per requirements)
	Windows 2000/NT/XP	Operating system should match your requirements
	Internet Browser	Microsoft Internet Explorer recommended
	LAN card	Consider wireless



AGR 012 (Version 1.0)

Computer Managed Instruction (CMI)

AGR006 Computer Managed Instruction (File-Based)
 AGR010 Computer Managed Instruction (Web-Based)
 CMI systems (or similar systems referred to as Learning Management Systems -- LMS, or Training Management Systems -- TMS) manage courseware, students, and resources in a training environment. This document provides a list of CMI/LMS/TMS functions, so that you can decide which functions are important to your training organization. Once you decide on the needed functions, the list will enable a better evaluation of an LMS. Many of these functions also depend on content. For instance, an LMS cannot know a student's lesson score unless the lesson content reports it. So this checklist can also guide the selection (or development) of content features. In addition, there is a tutorial description of CMI functionality available.

We recommend that any CMI system be AICC compliant and properly tested through the AICC Independent Test Lab.

Priority	Requirement	Notes
1 – 5	Supported standards. (AICC, SCORM, IEEE, IMS, etc)	Many features require both the content and the LMS to adhere to the same standards. If any student data reporting is important, than both the content (reporting the data) and the LMS (receiving the data) must support the same standard in order to work together.
	Component to develop course structures	
	Define lessons	
	Assign training objectives	
	Assign lessons from different courses	
	Define lesson hierarchies (group lessons into sequences)	
	Define and manage resources	Classrooms, equipment, instructors, etc.
	Schedule materials outside the CMI system	
	Testing component to report student test results	
	Use different types of tests	
	Relate test items to objectives	
	Define tests from pool of test items	
	Test item weighting & completion criteria	



AGR 012 (Version 1.0)

Test assignment – pretest, post-test, etc.	
Collect test item data	Individual answers, latency, etc.
Student rostering component to register students and enter demographic information	
Register students in a course or courses	
Batch enrollment for multiple students in one course or one student in multiple courses	
Self-enrollment for students	
Removal of students from completed courses	
Create standard reports for day-to-day administrative information	
Course roster	
Current assignment of students in a course	
Resource utilization	
Student performance history	
Course maps – graphical and descriptive	
Student Assignment Management component	
Administrator/Instructor functions for day-to-day operations	Change student grades, change required lessons, etc
Define and manage assignable units (see glossary)	
Change and reschedule offline events	Simulation time, classroom, etc.
Sequence training events based on prerequisites and other rules.	
Standard approach to start-up lessons	
Methods to route students from one lesson to another	
Content (assignable units) can be used if disconnected from the Web, and results provided to LMS.	
Student logon functions – single point of access	
Security of lesson materials	
Data collection and management function	
Collect and maintain student performance data	
Lesson completions	
Time on lesson	
Pass/Fail status	



What is a CMI system? What is an LMS?

Computer-Managed Instruction originated as a term in the 1970's that referred to using a computer to manage a group of students going through a computer based training course. Today, the concept has grown to have many definitions. In its broadest sense, it includes the following functions for students taking a course:

- 1) Rostering and storing student information.
- 2) Scheduling students and resources.
- 3) Computer acquisition and storage of student performance data.
- 4) Data analysis and presentation. After the data has been collected, it can be massaged by the computer, providing meaningful summaries for human interpretation.
- 5) And finally, the computer can make decisions based on its analysis of the student's performance. It can manage the student's learning. It makes decisions as to what material the student should cover next, what material is not necessary, and what remedial actions if any, should be taken.

Today, most student management systems are called Learning Management Systems or Training Management Systems. These systems perform the functions listed above, but in addition offer several of the following features:

- 1) Management of students through many courses
- 2) Management of students over the Web
- 3) Manage records of student training history
- 4) Track competencies, proficiencies and qualifications
- 5) Comprehensive management of offline resources such as simulators and classrooms
- 6) Comprehensive management of online content and assets
- 7) Course and content development tools



AGR 012 (Version 1.0)

CBT Icons

AGR009 Icon Standards: User Interface

These guidelines help define the functions and appearance of the student/user interface to the CBT material and delivery systems. They are recommended to reduce confusion and frustration that can distract from the learning experience. Your CBT/Training course may not need or use all the listed icons below. These are listed as a reference point to help you ensure you have the necessary user interface components you need. Each icon's appearance, colors, location, size, and purpose should be defined and adhere to the standards recommended in AGR009.

Priority 1 – 5	Requirement	Notes
	Navigational Controls	
	Forward arrow – next	
	Back arrow – previous	
	Menu – course/lesson layout	
	Close – return to lesson from menu/glossary	
	Pause	
	Exit – exit lesson	
	Audiovisual Controls	
	Audio – On/Off	
	Audio Control – branch to control options	
	Video Control – branch to control options	
	Text – On/Off	
	Repeat – replay audio, video, animation, etc.	
	Student Support Options	
	Progress bar through a course	
	Help icon to give access to additional information	
	Options icon for additional CBT controls	
	Glossary icon to access list of relevant terms	
	Comments icon for students to give feedback	
	Additional controls	



AGR 012 (Version 1.0)

Intentionally Left blank



AGR 012 (Version 1.0)

Page 13 of 14
31 Jan 2005

APPENDIX A Acronyms

For a complete list of glossary terms and definitions, see AICC document CRS002.

AGR	AICC Guidelines & Recommendations	AICC	Aviation Industry CBT Committee
ITL	(AICC) Independent Test Lab	CMI	Computer Managed Instruction
LMS	Learning Management System	SCORM	Shareable Content Object Reference Model
CBT	Computer Based Training	IEEE	Institute of Electrical and Electronics Engineers
IMS	Instructional Management System Global Consortium	HRIS	Human Resources Information Solution
ERP	Enterprise Resource Planning	XML	Extensible Markup Language
PENS	Package Exchange Notification Services		



Appendix B

13 Questions to Ask LMS (Learning Management Systems) Developers

Here are 11 of the most important questions you should be asking potential LMS vendors:

1. Does the LMS provide tools for creating and managing learning plans and job profiles, including multiple career-path options?
2. Can the system integrate with the e-conferencing technology we currently use?
3. What other collaboration technologies does the LMS offer?
4. Can the LMS vendor integrate the courseware we have created internally and/or currently license from content providers?
5. If we purchase new or additional off-the-shelf courseware, do we have to negotiate with each content provider separately, or can all our courseware be contracted through the LMS vendor?
6. Does the system have built-in content creation tools? Can other industry-standard authoring tools also be used?
7. Does the LMS support blended learning? Can it simultaneously manage synchronous and asynchronous e-learning, as well as classroom scheduling for students and instructors?
8. Is customization and integration with existing HRIS and ERP systems available?
9. What support, maintenance and version-update provisions are included in the contract?
10. Does the LMS offer data import/export capabilities in required formats (Excel, XML, etc.)?
11. If the system is being offered as a hosted solution, is there a path to take the LMS in-house at a later date, if desired?
12. Does your LMS support CBT Package Exchange Notification Services (PENS) (AGR 011)?
13. Does your Authoring System support CBT Package Exchange Notification Services (PENS)?