Appendix A

Instructional Strategy Selection Aid

INTRODUCTION

Selecting appropriate instructional strategies for the various enabling objectives (or instructional steps) can be accomplished by first determining the "instructional function" to be served by the objective and then determining strategies that support that function. Instructional functions are similar to the events of instruction proposed by Gagne (1985). Table A.1 lists some primary instructional functions and associated strategies. These strategies are briefly described in Table A.2. For a more extensive list of instructional strategies see the Glossary of Instructional Strategies by PlasmaLink Web Services (Plasmalink, 2003).

PROCEDURE

The procedure for using these tables is as follows:

1. For each instructional step, or enabling objective, pick the appropriate instructional function being served from the Function column of Table A.1.
2. Check the appropriate column under "Instructional Function" on the Worksheet. If the function can be broken down further, note the sub-function (by using a second order breakdown, e.g., a., b., c.) in the Function column.
3. Review the list of strategies associated with that function (sub-function) shown in the "Strategy" column in Table A.1. See Table A.2 for descriptions of each of the strategies.
4. List the strategy (or strategies) appropriate for carrying out the enabling objective (instructional step) in the "Strategy" column of the Worksheet.

Table A.1 Instructional Strategies for Various Instructional Functions

Function	Strategy
Preview	
a) Motivating	• Show how it is important to learner: consequences, rationale
b) Orienting	• Show how it fits in: purposes, goals, objectives, "advanced organizers" • Show why prior learning is required, how required
c) Providing Inputs, Describing conditions	• Show, tell or demonstrate the starting point (the "givens")
Acquisition of skills and knowledge (Presenting material and providing learning guidance)	(All strategies require providing feedback)
a) Information/knowledge learning	• Mediation (e.g., mnemonic, stimulus-response chaining, drill/over learning

Function	Strategy
b) Discriminations	• Shaping (successive approximations) • Divergent Instances • Mediation • Compare/contrast
c) Concepts/generalizations	• Relevant Attributes • Irrelevant Attributes • Divergent Instances • Matched Instances • Negative Instances • Defined Concepts
d) Rules	• Deductive (also ruleg) • Inductive (also egrul and discovery) • Algorithm • Heuristic • Chaining • Shaping
e) Task performance	• Shaping • Drill (repeated practice) • Analogous sequence • Inductive sequence
f) Exercise	• Exercise model (e.g., prime, prompt, perform)
Practice for Proficiency	• Isolated practice (part) with feedback • Integrated practice (whole) with feedback • Practice in job-like environment
Assessing Performance	• Self-testing • Mastery testing • Job simulation
Providing Means for Retention	• Performance aids • Review guides • Practice-distributed over time

Table A.2 Instructional Strategy Descriptions

Strategy	Description
Advanced organizers	An overview of new material presented in advance so as to counteract the effects of proactive inhibition; the term originated from Ausubel's theory of meaningful verbal learning (Ausubel, 1963).
Algorithm	A particular procedure specifying a sequence of operations for solving a problem of a given type (Merrill and Boutwell, 1973); or a rule for analyzing a given instance in order to identify its class membership or to set it up for applying the operation. Also may be a rule for synthesizing an answer or product by applying an operation. (Contrast with heuristic.)
Analogous sequence	In the analogous sequence, ideas proceed from like or similar instances (similar or relevant attributes) to generalizations.
Chaining	The linking together of a series of responses in a particular order; the completion of the first responses provides the

Strategy	Description
	stimulus for the second response, etc. with reinforcement provided at the end of the chain of responses (e.g., in the solution of a long division problem; each step in the procedure could be separately taught, even in a random order, but the final performance requires a prescribed order to achieve the solution; to provide a student knowledge of results at the end of the solution).
Compare/contrast	The learner is instructed to describe how two or more concepts, ideas, objects, etc. are similar or different.
Deductive (see also ruleg)	A method of instruction, study or argument which proceeds from general or universally applicable principles to particular applications of these principles and demonstrates the validity of the conclusions.
Deductive sequence	In the deductive sequence, ideas proceed from generalizations, principles, rules, laws, propositions or theories to specific applications. The deductive sequence involves presenting a generalization and then seeking or providing examples.
Defined Concepts	A defined concept is learned when the learner can demonstrate the "meaning" of some particular class of objects, events or relations. The demonstration may involve verbal reference to the definition, and this is an adequate demonstration when one assumes that the learner knows the meaning of the words involved in the definition. If that knowledge cannot be assumed, it might be necessary to ask for the demonstration in other terms. Demonstration of the meaning is emphasized in order to establish a distinction between this kind of mental processing and the kind involved in memorized verbal information.
Divergent Instances	A group of instances of a concept in which the irrelevant attributes are as different as possible (Merrill and Boutwell, 1973).
Drill	Practicing an activity over and over (stimulus – response cycle) until it is correctly performed.
egrul	An inductive approach, leading the student through a series of examples (eg's) before having him/her formulate the rule (ru) him/herself (Markle, 1983). (Also see inductive method.)
Fading/vanishing	Fading is the gradual removal of the prompts in a sequence of items teaching a particular topic. Sequences typically begin with highly prompted items and end with unprompted terminal items. The word is sometimes used as a synonym of vanishing (Markle, 1983). Vanishing involves the removal of more and more of the components of a specific chain of responses. Although often used synonymously with fading, in vanishing the process of withdrawing prompts is not strictly parallel to fading (Markle, 1983).
Feedback	The information received by the learner immediately after the learner's response to a question or questions indicating to the learner the correctness of his/her response. Feedback is not necessarily synonymous with reinforcement, since it is

Strategy	Description
	redefined by its effect on the recurrence of the response. A distinction is made between providing the learner the correct answer, and providing a more extensive discussion of why the answer is correct. Discussion is the feedback (Markle, 1983).
Generality	An abstraction referring to a whole class or relating several classes of specific instances (similar to "rule" in ruleg system) (Merrill and Boutwell, 1973).
Heuristic	The solution of a problem by trial and error, evaluating each step towards a final result. Also "heuristic approach" which is an exploratory approach to a problem using successive evaluations of trial and error to arrive at a final result.
Inductive (see also egrul and discovery)	A method of instruction based on the presentation to the learner of a sufficient number of specific examples to enable him/her to arrive at a definite rule, principle or fact. (Contrast with deductive method.)
Inductive sequence	In the inductive sequence, learners are encouraged to analyze information or data and hypothesize, discover a pattern or draw a conclusion. The inductive sequence moves from examples to discovery or presentation of the generalization.
Irrelevant Attributes	Those characteristics which do not determine class membership of a given instance of a concept (Merrill and Boutwell, 1973).
Matched Instances	A group of instances of a concept in which the irrelevant attributes are as similar as possible (Merrill & Boutwell, 1973).
Mnemonic	The use of a memory device to foster learning a stimulus – response connection.
Negative Instances	Any specific example that is not a member of a class (similar to eg in the ruleg system) (Merrill and Boutwell, 1973).
Prompt	A stimulus added to the terminal stimulus to make the correct response more likely while being learned. It may be pictorial or verbal. Prompts vary in strength, i.e., in the probability with which they will evoke the correct response from a given population. The term is used synonymously with cue and is generally synonymous with the non-technical term hint. Prompts were classified by Skinner into two major types: formal prompts provide knowledge about the form of the expected response, such as the number of letters, the initial letter or the sound pattern (prompted by a rhyme); thematic prompts depend on meaningful associations which make the student likely to give the expected response (Markle, 1983).
Relevant Attributes	Those characteristics that determine class membership of a given instance of a concept (Merrill and Boutwell, 1973).
ruleg	The systematic technique for construction of instructional sequences developed by Evans, Glaser and Homme (1960): All verbal subject matter is classified into (1) ru's, a class including definitions, formulae, laws, etc.; and (2) eg's, a class including descriptions of physical events, theorems, statements of relationships between specific objects, etc. The latter provide examples (eg's) of the former class of

Strategy	Description
	statements. The authors recommend that instructional designers introduce new information according to the formula "ru, eg, incomplete eg," the learner's response being the completion of the incomplete example (Markle, 1983). (See deductive method. Contrast with egrul.)
Shaping	An instruction sequence which begins with copying behavior and moves through highly prompted items through fading to the final criterion performance (Markle, 1983).

WORKSHEET

Instructional Step (Enabling Objective)	Instructional Function	Strategy	Technique

REFERENCES

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Appendix B

Documentation Evaluation Checklist

INTRODUCTION

The Documentation Evaluation Checklist provided in this appendix contains a shortened version of the guidelines for documentation described in Chapter 7. It is highly recommended that users of the checklist read and become familiar with the guidelines as stated in Chapter 7 before applying the checklist in the evaluation of a document. This checklist format is based on the checklist designed by the author for ISO 9241-14 (Menu dialogues) and used in ISO 9241, Part 12 through 17. The procedure for using the checklist is essentially a two stage process (i.e., determining which guidelines are applicable; and then whether those applicable guidelines have been met). The evaluation procedure should be based on an analysis of typical users, their typical and critical tasks, and their typical usage environments. Evaluations generally fall into the two following categories:

1. When users and user tasks are known, evaluators evaluate the document in the context of users accomplishing typical and critical tasks in a typical usage environment.
2. When specific users and user tasks are not known, evaluators evaluate the document in terms of meeting all of the guidelines that are expected to be relevant.

PROCESS

As noted above, the evaluation process is a two step process:

1. The first step in the evaluation process is to determine which guidelines are applicable. The applicability of a guideline is based on:

   a) Whether the conditional statement, if included as part of the guideline, is true. A particular recommendation is (or is not) applicable when the conditional if-statement is (or is not) true. For example, if a checklist with many blocks was not used (guideline 2.7), guideline 2.7 would not be applicable.
   b) How the design environment pertains to the guideline. A particular guideline may (or may not) be applicable because of user, task, environment and technology features. For example, if procedures and instructions were not included, guidelines in “3 Procedures and Instructions” would not be applicable.

   The methods that are appropriate to determine applicability of a particular guideline include: system documentation analysis, documented evidence (e.g., prior studies), observation (the feature is included in the performance aid), analytical evaluation and empirical evaluation (see Chapter 8 for description of methods).

2. If a guideline is applicable on the basis of the criteria described above, the next step is to determine whether or not the guideline has been met. This can be determined by using one or more of the following methods: measurements (e.g., line width), observation, documented evidence, analytical evaluation or empirical evaluation.

Guidelines	Applicable	Met	Comments
1 General			
1.1 Content written with the specific users in mind and helpful for both novice and experienced users.			
1.2 Multiple levels of information provided.			
1.3 Standard framework utilized to distinguish between multiple levels of information.			
1.4 Information is current information, can be read quickly and is understandable.			
1.5 Written for the appropriate reading level of the user.			
1.6 Material balanced between brevity, elaboration and redundancy of information.			
1.7 If possible, verbal material complemented by related pictorial information.			
1.8 Primary ideas of long paragraphs in a section summarized before the text.			
1.9 Text contains the same and standardized syntax.			
1.10 Text stated as briefly and concisely as possible.			
1.11 Sentences short and the use of many subordinate clauses avoided.			
1.12 Negative forms and passive tenses avoided (definite and affirmative sentences in the active tense used).			
1.13 Sentences with personal pronouns used if appropriate.			
1.14 The use of long noun strings in sentences avoided.			
1.15 Relative clauses without relative pronouns are avoided.			
1.16 Third person used for definitions and the use of second person imperative limited to procedures.			
1.17 Simplified English used.			
2 Logical Content			
2.1 Documents titled to increase comprehensibility.			
2.2 Hierarchical relations among the components of procedures clearly evident.			

Guidelines	Applicable	Met	Comments
2.3 Layout of documents standardized and structure apparent to users.			
2.4 Sentences and paragraphs structured logically.			
2.5 General placed before specific, more important placed before less important, more frequent placed first and permanent placed before temporary.			
2.6 Instructions written to reflect logical and temporal order of task accomplishment.			
2.7 If many blocks of task steps are not applicable in a check list, user provided with the capability to sign off many steps as (N/A) as one block.			
2.8 Outline provided to show the necessary operations in a step-by-step sequence (emphasizing key points of the task).			
2.9 Flow chart used to depict task sequence, choice points and alternatives (task steps numbered).			
2.10 For forms, reminders of very important procedures put on the form itself instead of in the initial instructions.			
2.11 Appropriate coding used for revisions, additions and deletions.			
3 Procedures and Instructions			
3.1 Procedures written in the natural order in which the task would be done by most users.			
3.2 Instructions are clear, simple, accurate and self-explanatory.			
3.3 Sufficient information is provided in the instruction steps.			
3.4 Action verbs used in procedural statements.			
3.5 If task requires movement around work area, sequence keeps movement to a minimum.			
3.6 Physically adjacent tasks are listed together within the document.			
3.7 Directional material does not include more than two or three related actions per step.			
3.8 Work procedures broken down into manageable chunks and presented in a logical order.			
3.9 Information chunks broken down into logical and sensible steps.			

Guidelines	Applicable	Met	Comments
3.10 The format of instructions adapted to the characteristics of the related task.			
4 Headings and Levels			
4.1 Headings emphasized at the same level of the structure in the same way.			
4.2 Each step in a process numbered.			
4.3 Path between task instructions clearly specified.			
4.4 Levels of subordinate (headings and subheadings) within each primary division limited to three.			
4.5 Number of visual properties showing the differences among the headings limited.			
4.6 Paragraphs, headings and subheadings kept short (when grouping and arranging the text).			
4.7 Subdivisions and heading levels in the text are used sensibly.			
4.8 Headings and subheadings are clear and understandable.			
4.9 Topic diagram for the content of the document used when appropriate (topic diagrams are helpful for hierarchical organization).			
4.10 If appropriate, numbers used for paragraphs and sections.			
4.11 Differences among category responses are clear.			
5 Notes and Warnings			
5.1 Notes, warnings and comments in the procedures provided as necessary to ensure task performed safely and accurately.			
5.2 Warnings, cautions and notes used to emphasize important points.			
5.3 Directive information, reference information, warnings, cautions, notes, procedures and methods easily distinguishable.			
5.4 Importance of a particular category of information over others is clear (e.g., warnings, cautions, notes, procedures, methods, directive information and references, in decreasing order of importance).			
5.5 Cautions and warnings placed directly above, or to the left of, the text to which they apply.			

Guidelines	Applicable	Met	Comments
5.6 Notes placed after the related text to which they apply.			
5.7 Cautions, warnings and notes placed on the same page as the text to which they apply.			
6 Typographic Layout			
6.1 Single column layout used whenever possible.			
6.2 Line lengths kept to 10 or 12 words (about 6 or 7 inches).			
6.3 If 8 ½ X 11 paper used, left margin of 1.5 inches provided and minimum 1.0 inch for all other margins used.			
6.4 Subject heading placed at the top of each page.			
6.5 Sequential page numbers provided on every page.			
6.6 Page numbers placed consistently on all pages and documents (e.g., the lower right corner and 0.5 inches above the bottom edge of the page). **But not extended into the right margin.**			
6.7 Modified block style paragraphs with 2 spaces indentation for subdivision used when appropriate.			
6.8 Heading and subheading identified sequentially with a label (e.g., 1, 1.1, 1.1.1, etc.).			
6.9 Paragraphs shorter than a half page in length within a heading.			
6.10 One blank line placed between paragraphs and headings.			
6.11 If check boxes used in instructions, the check box is in close proximity to the instruction. The same check box design used throughout.			
6.12 If a written response is required, sufficient space provided for the response			
6.13 One space left after comma, semi-colon and colons and double space left after periods, question marks and exclamation marks.			
6.14 A space ratio of 1:2 between sentence spacing (leading space) and paragraph spacing used if appropriate.			
6.15 Equal word spacing used, rather than proportional word spacing.			

Guidelines	Applicable	Met	Comments
7 Pagination			
7.1 Referencing back to previous text or referencing to other sections of the document limited. (If cross-references must be used, they are accurate and unmistakable.)			
7.2 Page used as a naturally occurring information model (i.e., it should contain an appropriate number of tasks).			
7.3 If possible, each task that starts on a page stops on that page (try to prevent the carryover of tasks across pages).			
7.4 Minimize routing (i.e., do not make the user go from page to page).			
8 Abbreviations, Letters, Words and Numbers			
8.1 Only approved acronyms and proper nouns used.			
8.2 Use of abbreviations minimized. If used, they are used consistently and a glossary of abbreviations included in the document.			
8.3 If there is an unavoidable inconsistency for the used abbreviations, a Glossary of interchangeable designations included.			
8.4 Lower cased letters used instead of upper case in the text.			
8.5 Mixed-case headings and sub-headings used instead of all capitals when possible.			
8.6 Hyphens not used for merely showing word division at the end of line.			
8.7 If a series of words or statements contains mutually exclusive choices, 'or' used explicitly throughout the series.			
8.8 Roman numerals not used.			
8.9 If sequence is important in a list, Arabic numbers are used followed by a period.			
8.10 If sequence is not important in a list, bullets or dashes used to set off the items.			
8.11 In a numbered list, the number is not contained within parentheses.			
9 Lists and Tables			
9.1 Data and information presented in tables to facilitate understanding and comparison.			
9.2 Blank spaces use limited to five (about half an inch) in a single row.			
9.3 Lines grouped by content.			

Guidelines	Applicable	Met	Comments
9.4 Grouping more than five lines together avoided.			
9.5 Groups separated by controlling the spacing between rows and columns.			
9.6 In a list of items, parallel construction is used (easier to read and understand when the construction is the same)**.**			
9.7 In a series of items, conditions, etc., a list is used instead of showing them as a comma-separated series.			
9.8 Compound questions and statements are avoided.			
10 Graphic Information			
10.1 Illustrations and pictures placed in the text of a document near the content to which it is related. (If not possible, illustration or picture placed in an appendix, given a label and refer to it in the text.)			
10.2 A clear title with a figure number, placed on the line directly below all illustrations. Same title used for illustrations as the title of the text.			
10.3 Each table or figure identified with an Arabic numeral label, such as Table 1, Figure 1.			
10.4 If appropriate, either a horizontal-landscape format with the top of the illustration at the binding edge, or a vertical layout to show graphic information is used.			
10.5 Sufficient text is provided to make an illustration clear.			
10.6 Illustrations are uncluttered with brief information/learning points, and presented in a self-explanatory way.			
10.7 Where possible, all spatial information shown in a graphical format instead of in a textual format.			
10.8 Where possible, simple line drawings are used.			
10.9 The same form used for figure layout and numbering.			
10.10 Illustrations used whenever they will simplify, make the text shorter and easier to understand.			
10.11 Easy reference numbers provided for figures.			
10.12 Perspective part drawings as figures avoided.			

Guidelines	Applicable	Met	Comments
10.13 Illustrations provide the same view as seen in reality by the user.			
10.14 Standard and correct technical drawing terminology incorporated.			
10.15 All tables and figures referenced in the text by their numbers.			
10.16 Where possible, bar charts used for comparing numerical data accurately.			
10.17 Line charts (or graphs) used where important to understand trends, and to accurately compare two or more numerical values.			
11 Printing Considerations			
11.1 Paper used has a reflectance of minimum 70.			
11.2 Matte paper used instead of medium or glossy paper.			
11.3 High opacity paper used.			
11.4 If the user will use the document under low illumination levels, high visual contrast and large type size is used.			

Appendix C

Performance Aid Evaluation Checklist

INTRODUCTION

The Performance Aid Evaluation Checklist provided in this appendix contains a shortened version of the guidelines for performance aids described in Chapter 7. It is highly recommended that users of the checklist read and become familiar with the guidelines as stated in Chapter 7 before applying the checklist in the evaluation of a performance aid. This checklist format is based on the checklist designed by the author for ISO 9241-14 (Menu dialogues) and used in ISO 9241, Part 12 through 17. The procedure for using the checklist is essentially a two stage process (i.e., determining which guidelines are relevant; and then whether those relevant guidelines have been met).

The evaluation procedure should be based on an analysis of typical users, their typical and critical tasks, and their typical usage environments. Performance aid evaluations generally fall into the two following categories:

1. When users and user tasks are known, evaluators evaluate the performance aid in the context of users accomplishing typical and critical tasks in a typical usage environment.
2. When specific users and user tasks are not known, evaluators evaluate the performance aid in terms of meeting relevant requirements and guidelines.

PROCEDURE

As noted above, the evaluation process is a two step process:

1. The first step in the evaluation process is to determine which guidelines are applicable. The applicability of a guideline is based on:

   a) Whether the conditional statement, if included as part of the guideline, is true. A particular recommendation is (or is not) applicable when the conditional if-statement is (or is not) true. For example, if users do not need to compare items guideline 1.11would not be applicable.
   b) How the design environment pertains to the guideline. A particular guideline may (or may not) be applicable because of user, task, environment and technology features. For example, if a chart was not used (guideline 1.9) then guideline 1.9 would not be applicable.

   The methods that are appropriate to determine applicability of a particular guideline include: system documentation analysis, documented evidence (e.g., prior studies), observation (the feature is included in the performance aid), analytical evaluation and empirical evaluation (see Chapter 8 for description of methods).

2. If a guideline is applicable on the basis of the criteria described above, the next step is to determine whether or not the guideline has been met. This can be determined by using one or more of the following methods: measurements (e.g., line width), observation, documented evidence, analytical evaluation, or empirical evaluation.

Guidelines	Applicable	Met	Comments
1 Finding Information			
1.1 If a checklist is used, information placed in the order it will be checked on the job.			
1.2 Attention is directed to significant information by: **a) the position of cue sentences; or** **b) using color; or** **c) using arrows.**			
1.3 Adequate contrast between a cuing device and its background.			
1.4 If multiple colors are used for cuing, the colors used are sufficiently different.			
1.5 Space and borders are used to differentiate the most important information.			
1.6 White space is used as liberally as possible to set off information.			
1.7 Color coding used to separate information into meaningful chunks. (Colors used are also discriminated if seen in shades of gray.)			
1.8 If keys or labels are used for designating information groups, they are easily seen and located. Keys or labels are consistently located.			
1.9 If a chart is used, the most significant information is placed in upper-left corner (for left to right languages)**.**			
1.10 If a mathematical table is used, the base-number column is in boldface type (since numbers in the base-number column are used to find the data in the table)**.**			
1.11 If the user must compare items, information is placed in columns.			
1.12 Where possible, information is grouped into tables, rather than matrices. (If space is at a premium, however, a matrix may be preferable).			
1.13 Sufficient detail is provided to allow the user to tell the difference between similar items or categories.			
1.14 Examples are placed as close to relevant text as possible.			
1.15 Procedural steps are placed last to re-enforce prior to performing.			

Guidelines	Applicable	Met	Comments
1.16 If procedures have supporting illustrations, text is placed beneath illustrations rather than above.			
1.17 Data are arranged consistently by: sequence of use, frequency of use, functionality, importance, conventional use, specificity or alphabetical, numerical or chronological sequence.			
1.18 If lines are used to separate data, the number of line widths used is limited to two (hairline width for most purposes and a heavier line for emphasis)**.**			
2 Accuracy			
2.1 Information (in terms of content requirements) verified by subject matter experts.			
2.2 Where possible tables used, rather than graphs to minimize information processing			
2.3 If bar graphs used, narrow or widely spaced bars are displayed horizontally, rather than vertically (people tend to overestimate percentages represented by vertical bar graphs)**.**			
2.4 Items or numerals separated into groups of five or six for better accuracy.			
2.5 If the group needs to be larger than 5 or 6, extra space provided between groups.			
3 Clarity			
3.1 User requirements and content requirements reviewed to determine clarity issues (e.g., the level and type of information that the user will most likely be able to comprehend)**.**			
3.2 Symbols and terminology familiar to the user are used.			
3.3 Symbols and terminology are used consistently so as to avoid confusion.			
3.4 Whenever possible, diagrams are used instead of text. (Diagrams are typically better than text for relaying procedures, identifying parts, etc.)**.**			
3.5 If information does not need to be processed, tables or scales are used instead of graphs.			
3.6 Procedures and steps are as straightforward and simple as possible.			

Guidelines	Applicable	Met	Comments
3.7 Headings and labels are used for item groups and items that are in the user's vocabulary.			
3.8 Only jargon that is part of the user's language is used.			
4 Completeness and Conciseness			
4.1 All of the information necessary to support the performance of the activity, except for information that the user already knows, is included.			
4.2 If the aid is designed for speed, only essential information is included (minimize unnecessary detail).			
4.3 Sentences, paragraphs and words are as short and concise as possible.			
4.4 Additional text to fill a page or balance the presentation of an illustration is avoided.			
4.5 Sufficient directive and supportive information is provided in the aid so that it can be used by the typical user without further explanation.			
5 Legibility			
5.1 Sufficient white space provided to ensure readability (for printed performance aids, leave 20 – 50% white space on a page)**.**			
5.2 For text, 10 to 12 point type (Times Roman), initial caps and lower case used (if space permits, however, consider 12 – 14 point to ensure readability for older populations)**.**			
5.3 Text block lines are approximately 10 to 12 words in length.			
5.4 Vertical presentation of text is avoided.			
5.5 Black on white is used for text (generally avoid colored backgrounds because of decreased legibility)**.**			
5.6 For paper aids, if colored ink is used and the background illumination may vary, white is used for the background.			
5.7 For paper aids, the contrast ratio between the print and the paper is at least 3 to 1.			
5.8 If an additional color is used with black, bold face type is used (other colors will look lighter than the black and using a bold font will compensate for this)**.**			
5.9 If a chart type performance aid will be			

Guidelines	Applicable	Met	Comments
read at a distance, orange-red tones on bluish-gray backgrounds are used (these combinations are most visible at long distances)**.**			
5.10 Numbers are presented in Arabic digits instead of words (numbers are much quicker to recognize than words)**.**			
5.11 Margins on pages are standardized and are at least ½ inch on all sides.			
5.12 Adequate spacing between letters, words, paragraphs and display units.			

Appendix D

Online Help Evaluation Checklist

INTRODUCTION

The Online Help Evaluation Checklist provided in this appendix contains a shortened version of the guidelines for online help described in Chapter 7. It is highly recommended that users of the checklist read and become familiar with the guidelines as stated in Chapter 7 before applying the checklist in the evaluation of online help. This checklist format is based on the checklist designed by the author for ISO 9241-14 (Menu dialogues) and used in ISO 9241, Part 12 through 17. The procedure for using the checklist is essentially a two stage process (i.e., determining which guidelines are applicable; and then whether those applicable guidelines have been met). The evaluation procedure should be based on an analysis of typical users, their typical and critical tasks, and their typical usage environments. Evaluations generally fall into the two following categories:

1. When users and user tasks are known, evaluators evaluate the online help in the context of users accomplishing typical and critical tasks in a typical usage environment.
2. When specific users and user tasks are not known, evaluators evaluate the online help in terms of meeting all of the guidelines that are expected to be relevant.

PROCESS

As noted above, the evaluation process is a two step process:

1. The first step in the evaluation process is to determine which guidelines are applicable. The applicability of a guideline is based on:

   a) Whether the conditional statement, if included as part of the guideline, is true. A particular recommendation is (or is not) applicable when the conditional if-statement is (or is not) true. For example, if users only use selection to specify help topics (guideline 3.5), guideline 3.5 would not be applicable.
   b) How the design environment pertains to the guideline. A particular guideline may (or may not) be applicable because of user, task, environment and technology features. For example, if system-initiated help was not utilized, guidelines in “2 System-initiated help” would not be applicable.

   The methods that are appropriate to determine applicability of a particular guideline include: system documentation analysis, documented evidence (e.g., prior studies), observation (the feature is included in the performance aid), analytical evaluation and empirical evaluation (see Chapter 8 for description of methods).

2. If a guideline is applicable on the basis of the criteria described above, the next step is to determine whether or not the guideline has been met. This can be determined by using one or more of the following methods: measurements (e.g., line width), observation, documented evidence, analytical evaluation or empirical evaluation.

Guidelines	Applicable	Met	Comments
1 Common guidance			
1.1 General guidance recommendations			
1.1.1 Recommendations in other relevant Sections			
1.1.2 Readily distinguishable from others displayed			
a) Clear distinction between application windows and help windows			
b) Different types of help information clearly distinguishable by spacing, highlighting, fonts, etc.			
1.1.3 System initiated guidance messages no longer applicable to current system state or user actions removed from display			
1.1.4 User initiated guidance stays under control of user			
1.1.5 Provide specific task relevant information rather than generic messages			
1.1.6 Not disruptive of user's task and continuation of dialogue			
1.1.7 Distinctive message or coding consistently used for attention			
1.1.8 If interaction varies with user expertise, user able to specify the level of guidance they want			
1.2 Phrasing of user guidance			
1.2.1 The result of action stated before describing how to execute the action			
1.2.2 Phrased to enhance the perception of user control rather than system control of the task (e.g., do not use statements such as "the system will --")			
1.2.3 Worded as positive statements. However, negative statements used to denote exceptions or to emphasize a point			
1.2.4 Phrased using consistent grammatical construction			
1.2.5 Written or spoken text stated in short, simple sentences			
1.2.6 Stated in active voice (unless it conflicts with the user's national language)			
1.2.7 Uses terminology typical to the user population's tasks			

Guidelines	Applicable	Met	Comments
1.2.8 User guidance messages should be worded emotionally neutrally			
On-line help - Specific			
2 System-initiated help			
2.1 System-initiated on-line help provided when users: a) are inexperienced and need to become proficient quickly; b) access the system or application infrequently and need reminders to enable effective use; c) are unaware of available shortcuts in the system; d) have repeatedly used incorrect or inefficient procedures			
2.2 System-initiated on-line help not provided when: a) inexperienced users want the on-line help information presented, while the experienced do not; b) presentation of the on-line help text interferes with the user's interaction in the main task; c) system/application performance is noticeably degraded by the presentation of the on-line help information; d) the on-line help contains a great deal of detailed information that may not be needed by all users			
2.3 Task specific content provided for system initiated help			
2.4 System-initiated help provided is non-intrusive			
a) presented in area peripheral to task area or non-overlapping window			
b) routine help does not distract user from main task area			
c) help text never overwrites the entire task display			
2.5 User able to turn system-initiated help on and off			
3 User-initiated help			
3.1 Simple consistent means of requesting help provided			
3.2 Provide aids for locating topics: a) Table of contents, b) An index, c) Key word search capability, d) Full text search capability			
3.3 User can specify on-line topics when appropriate			
3.4 System support for topic selection provided when appropriate			
3.5 If user specifies help topics by methods			

Guidelines	Applicable	Met	Comments
other than selection, synonyms and close spelling matches allowed			
3.6 Ambiguous help requests supported by current task context information or a clarification dialogue			
3.7 If appropriate, help is accessible from anywhere in the application			
4 Presentation of help information			
4.1 Only information relevant to the specific topic provided			
4.2 Help presented as quickly as possible after request			
4.3 Response time for presentation of help predictable			
4.4 Media most appropriate to the topic used Note: Where possible, provide alternative media for different user preferences			
4.5 Task related information about the system and its purpose provided			
4.6 Both descriptive and procedural information provided as required for the task			
4.7 If task/procedural help provided:			
a) Format consistent			
b) Grammatical structure of topic and procedure titles coordinated			
c) All textually formatted steps listed under a procedure numbered			
d) If appropriate to step and user action, results of action described			
e) If possible, all steps in procedure visible without scrolling			
f) Help contains all steps necessary to complete activity			
4.8 Only information detail relevant to user's task and expertise in subject area presented			
4.9 Information displayed in form and location best suited to user's task			
a) Labels indicating meaning of screen objects displayed adjacent to object			
b) Popups used to display brief information, explanatory in nature			
c) Separate or secondary windows used to provide information referenced in conjunction with other help information or the task			
4.10 Links to topics and to popups distinguishable from text and each other			

Guidelines	Applicable	Met	Comments
4.11 Help menus should meet menu standard (see ISO 9241-14)			
4.12 Content presented in well-structured manner obvious to users			
4.13 Lists presented using bullets, dashes, numbers, etc.			
4.14 At least 50% of screen space within a help topic is white space			
4.15 Screen elements (e.g., navigation buttons) consistently located on help window			
4.16 Help windows and popups appear in appropriate screen positions			
4.17 Color used appropriately and sparingly			
4.18 Help obtainable in terms of "How do I?", "About" (What's this), etc.			
4.19 If command help provided, syntax information, lists of related commands and usage examples provided			
4.20 If appropriate, tips provided			
4.21 If appropriate, terms defined or glossary provided			
4.22 If appropriate, multiple help windows viewable at the same time			
5 Help navigation and controls			
5.1 If help takes the user out of the task dialogue, a means is provided to go back and forth between the dialogue and help			
5.2 Links to on-line training and documentation provided			
5.3 If possible, user control of on-line help provided so that users can:			
a) Configure system-initiated help (turn on/off, select level)			
b) Initiate help request whenever wanted			
c) Select and change help topic			
d) Control type of help information (if different types provided)			
e) Exit help system at any time			
f) Go back through topics visited (in reverse order)			
g) Go forward through the subtopic structure of the current topic			
h) Navigate through topic hierarchy to find topics at lower levels of structure			
i) Bookmark topics for future access			

Guidelines	Applicable	Met	Comments
j) Print topic if appropriate to the task			
5.4 If user system limited, modular help provided allowing user to select information to keep on their system			
5.5 If feasible, user able to customize help by annotation, save context when switching between help and task, and add help topics			
5.6 If help modal, cues indicating in help mode and method for exiting			
5.7 Movement from topic to topic quick (within 2 seconds)			
5.8 Quick access provided to navigation buttons or commands			
5.9 Help system provides navigation supports:			
a) easy recovery if lost (e.g., return to main menu)			
b) map of help system showing current location			
6 Browsable help			
6.1 Ability to browse through help displays provided			
6.2 A listing or map of on-line help topics provided			
6.3 Support for locating topic within large number of help topics provided (e.g., string search, keyword search, hierarchical structuring, map of topics)			
6.4 If applicable, help provides: direct links to related topics, cues for links, default browsing path, backup through topics, representation of linkage, user location markers			
6.5 Quick-access navigation aids for help provided			
6.6 Hierarchical help structure supported appropriately			
6.7 If help randomly accessed, information self-contained (i.e., the system should not assume users have read previous sections)			
6.8 Help extending beyond a single display supported			
6.9 If users not familiar with help system, topic describing structure and navigation through help system provided			

Guidelines	Applicable	Met	Comments
7 Context sensitive help			
7.1 Provided when task has specific steps or contextual information that enable the system to accurately predict the on-line help information needed			
7.2 Provides access to task information on: a) aspects (e.g., semantic or lexical; descriptive or procedural) of current dialogue step b) current task c) current application d) current transaction e) current window or dialogue box f) object) at current cursor position g) task information presented on the screen			
7.3 If multiple help topics are relevant at the current dialogue step, default provided while allowing the user to access other topics			
7.4 On-line help specific to user interface objects provides an explanation of what the object is, what it does and how to use it			
7.5 Cues when only a subset of interface objects have help			
8 Comprehensibility			
8.1 The help information accurately represents what the software can do			
8.2 If metaphors used, they are understandable by users			
8.3 Icons and buttons clearly communicate functions			
8.4 If graphics are used in the help system:			
a) functional graphics are used			
b) graphics are easy to understand			
9 Application links			
9.1 If possible, information can be transferred to application program (cut and paste)			
9.2 If appropriate, help uses same interface conventions as application			
9.3 User able to work in application program while help displayed			
10 Window manipulations			
10.1 Help windows can be moved by user			
10.2 If appropriate, help windows can be resized by user			

Guidelines	Applicable	Met	Comments
10.3 If appropriate, help windows can be minimized			

Appendix E

Coaches, Advisors, Wizards Evaluation Checklist

INTRODUCTION

The Coaches, Advisors, Wizards Evaluation Checklist provided in this appendix contains a shortened version of the guidelines for coaches, advisors and wizards described in Chapter 7. It is highly recommended that users of the checklist read and become familiar with the guidelines as stated in Chapter 7 before applying the checklist in the evaluation of one of these products. This checklist format is based on the checklist designed by the author for ISO 9241-14 (Menu dialogues) and used in ISO 9241, Part 12 through 17. The procedure for using the checklist is essentially a two stage process (i.e., determining which guidelines are applicable; and then whether those applicable guidelines have been met). The evaluation procedure should be based on an analysis of typical users, their typical and critical tasks, and their typical usage environments. Evaluations generally fall into the two following categories:

1. When users and user tasks are known, evaluators evaluate the document in the context of users accomplishing typical and critical tasks in a typical usage environment.
2. When specific users and user tasks are not known, evaluators evaluate the document in terms of meeting all of the guidelines that are expected to be relevant.

PROCESS

As noted above, the evaluation process is a two step process:

1. The first step in the evaluation process is to determine which guidelines are applicable. The applicability of a guideline is based on:

   a) Whether the conditional statement, if included as part of the guideline, is true. A particular recommendation is (or is not) applicable when the conditional if-statement is (or is not) true. For example, if the coaching or advice was not triggered by the system (guideline 2.4), guideline 2.4 would not be applicable.
   b) How the design environment pertains to the guideline. A particular guideline may (or may not) be applicable because of user, task, environment and technology features. For example, if a wizard was not being developed, guidelines in “3 Wizards” would not be applicable.

   The methods that are appropriate to determine applicability of a particular guideline include: system documentation analysis, documented evidence (e.g., prior studies), observation (the feature is included in the performance aid), analytical evaluation and empirical evaluation (see Chapter 8 for description of methods).

2. If a guideline is applicable on the basis of the criteria described above, the next step is to determine whether or not the guideline has been met. This can be determined

by using one or more of the following methods: measurements (e.g., line width), observation, documented evidence, analytical evaluation or empirical evaluation.

Guidelines	Applicable	Met	Comments
1 General			
1.1 Coaches, advisors and wizards tied closely to the work context or task on hand.			
1.2 The size and location of the coach, advisor or wizard window does not impede the view of the application window.			
1.3 Coaches, advisors and wizards reflect a consistent, identifiable design.			
1.4 Names (or titles) of coaches, advisors and wizards are short and consistent.			
1.5 A statement of purpose, a brief description or an introduction provided on the first page.			
1.6 The steps provided in a coach, advisor or wizard are clear.			
1.7 Descriptive text is clearly distinguishable from text prompting input.			
2 Coaches and Advisors			
2.1 Content of a coach or advisor consists of task-specific hints, tips and reasoning support.			
2.2 Content of coaches or advisors represents "best practice" or strategy.			
2.3 Coach or advisor content complete enough to act upon without being too wordy.			
2.4 If the coaching or advice is triggered by the system, users able to turn it off when desired.			
2.5 If triggered by the user, it is clear to the user how to activate a coaching or advice feature.			
2.6 Coaches and advisors provide the capability to send back data to the application screen to help user to complete task.			
2.7 Users able to add comments or annotations to coach and advisors.			
2.8 Advisors enable users to ask "why?" and receive explanations of the tip, rule or suggestion offered.			

Guidelines	Applicable	Met	Comments
3 Wizards			
3.1 Wizards enable novice users to complete critical tasks quickly.			
3.2 Unless the task is simple or done infrequently, wizards supplement rather than replace the user's direct ability to perform specific task.			
3.3 Wizards help users interactively complete a specific objective or goal, performing a task for user, based on user inputs.			
3.4 Alternatives available from the wizard provide user with positive results.			
3.5 Wizards designed to hide many of the steps and much of the complexity of a given task.			
3.6 The manner in which the system suggests or presents an option to access a wizard does not detract the user from the task at hand.			
3.7 The display of the wizard window allows the user to recognize it as the primary point of input.			
3.8 The wizard does not require a user to leave the wizard to complete task.			
3.9 Wizards clearly indicate how the user either proceeds or quits.			
3.10 It is obvious to the user how to proceed when the wizard has been completed.			
3.11 The wizard prompts the user through a clear succession of steps.			
3.12 Pages do not advance automatically (because users may not be able to read the information before the page advances)**.**			
3.13 The user always remains in control of the wizard, (e.g., go back and change a previous response, go forward, clear all, complete)**.**			
3.14 Wizard text is short, concise and simple and displayed in an uncluttered manner, but not condescending.			
3.15 Number of pages minimized that require the use of a secondary window.			
3.16 Visual differentiation provided so that users know that graphic illustrations on wizard pages are not interactive.			
3.17 Default values or setting provided for all controls where possible.			

Guidelines	Applicable	Met	Comments
3.18 Words like "you" and "your" used and most questions start with phrases like "Which option do you want…".			
3.19 Technical terminology that may confuse novice users is avoided.			

Appendix F

Instruction Evaluation Checklist

INTRODUCTION

The Instruction Evaluation Checklist provided in this appendix contains a shortened version of the guidelines for instruction described in Chapter 7. It is highly recommended that users of the checklist read and become familiar with the guidelines as stated in Chapter 7 before applying the checklist in the evaluation of instruction. This checklist format is based on the checklist designed by the author for ISO 9241-14 (Menu dialogues) and used in ISO 9241, Part 12 through 17. The procedure for using the checklist is essentially a two stage process (i.e., determining which guidelines are applicable; and then whether those applicable guidelines have been met). The evaluation procedure should be based on an analysis of typical users, their typical and critical tasks, and their typical usage environments. Evaluations generally fall into the two following categories:

1. When users and user tasks are known, evaluators evaluate the document in the context of users accomplishing typical and critical tasks in a typical usage environment.
2. When specific users and user tasks are not known, evaluators evaluate the document in terms of meeting all of the guidelines that are expected to be relevant.

PROCESS

As noted above, the evaluation process is a two step process:

1. The first step in the evaluation process is to determine which guidelines are applicable. The applicability of a guideline is based on:

   a) Whether the conditional statement, if included as part of the guideline, is true. A particular recommendation is (or is not) applicable when the conditional if-statement is (or is not) true. For example, if overlaid text is not used (guideline 3.15), guideline 3.15 would not be applicable.
   b) How the design environment pertains to the guideline. A particular guideline may (or may not) be applicable because of user, task, environment and technology features. For example, if the instruction was not computer or web delivered, guidelines in “4 Navigation” would not be applicable.

   The methods that are appropriate to determine applicability of a particular guideline include: system documentation analysis, documented evidence (e.g., prior studies), observation (the feature is included in the performance aid), analytical evaluation and empirical evaluation (see Chapter 8 for description of methods).

2. If a guideline is applicable on the basis of the criteria described above, the next step is to determine whether or not the guideline has been met. This can be determined by using one or more of the following methods: measurements (e.g., line width), observation, documented evidence, analytical evaluation or empirical evaluation.

Guidelines	Applicable	Met	Comments
1 Language and Grammar			
1.1 Reading level appropriate for learner and content and consistent throughout.			
1.2 Culture biased language and references avoided.			
1.3 Patronizing language or style avoided.			
1.4 Grammar, punctuation and spelling consistent with local standards.			
1.5 Short words and sentences used whenever possible.			
1.6 Transitions between sentences and paragraphs clear and adequate.			
1.7 Technical terms, acronyms and jargon used only when necessary to the content.			
1.8 If acronyms or technical terms used, they are defined.			
2 Layout			
2.1 Content organization (e.g., course title, objectives, prerequisites, lessons, exercises, summaries, etc.) clear and consistent.			
2.2 Graphics and text flow left to right and top to bottom (Western languages). (Information displayed so that the scan pattern follows the general scan pattern of the learner's native language.)			
2.3 Line lengths limited to provide sufficient "white space" in the margins of the page or window.			
2.4 Left margins should be justified and right margins not justified.			
2.5 Paragraphs single-spaced and separated with a blank line.			
2.6 Where possible, test messages broken at a phrase or idea boundary.			
2.7 Sentence and paragraph styles consistent throughout the course.			
2.8 Page breaks at appropriate points in the presentation.			
2.9 Text density should be less than 30% to create a clutter-free appearance.			

Guidelines	Applicable	Met	Comments
2.10 Navigation controls (e.g., back, forward, menu) clear and consistently located in all windows and screens.			
2.11 Directions (e.g., Press Forward to continue) placed in a consistent location on the window or screen (preferably at the end of the test)**.**			
2.12 Input fields clearly titled and consistently placed within the content.			
2.13 Consistent headings used for content summaries and as navigational aids.			
2.14 Instructional presentation windows used in conjunction with application screens do not cover up screen fields or information needed by learner.			
3 Presentation			
3.1 Text and graphics used appropriately to describe the instructional content.			
3.2 Instructional content is accessibility.			
3.3 Goals and objectives, relevant to learners, stated clearly in the content prior to the lesson material.			
3.4 The content presented: a) relevant to the objectives, b) accurate and complete, c) at the appropriate level of detail and d) at the appropriate level of realism.			
3.5 More difficult topics emphasized in the content presentation.			
3.6 Unless inappropriate, the lesson organization conforms to subject-matter organization.			
3.7 If instruction is computer delivered, paragraphs should be short (6 – 8 lines).			
3.8 Where possible, content windows or screens should cover only one major concept or instructional step.			
3.9 Appropriate words displayed on the screen in idea units corresponding to the instructional strategy.			
3.10 Scrolling in windows and screens to view content minimized.			
3.11 Text attributes (e.g., font style, color, underlining, highlighting and reverse video) used only to aid comprehension of the material.			
3.12 Pace of presenting new information reasonable and as consistent as possible.			

Guidelines	Applicable	Met	Comments
3.13 Emphasis techniques (e.g., capitalization, italics, motion, blinking, color, etc.) used sparingly to draw attention to key parts of the presentation.			
3.14 If computer delivered, fonts are a minimum of 11 points.			
3.15 If overlaid text is used, it is easily located on the display (consistent overlay boarders should be used for differentiation)**.**			
3.16 If incremental additions made to a growing graphic, clearly evident as to what part of graphic is new and what is old.			
3.17 Adequate detail provided to fully illustrate the thing being described.			
3.18 Animation and graphics are: **a) relevant,** **b) provide important information,** **c) at the appropriate level of detail,** **d) are aesthetic and** **e) have appropriate speed of display and motion.**			
3.19 Unnecessary or irrelevant graphics avoided (particularly the trivial use of animation and distracting scenes)**.**			
3.20 Motion video used only when appropriate.			
3.21 If presenting audio: a) messages short and crisp, b) introduction of new ideas and the density of technical terms carefully paced, c) repeat control provided, d) Page turning approach avoided, e) echoing text with audio avoided.			
4 Navigation (Computer-based or Web Delivery)			
4.1 All windows (screens) have appropriate navigation buttons and keys to: **a) progress forward and backward through the content,** **b) return to the beginning of both the lesson and the course.**			
4.2 Navigation buttons (and keys) work correctly and consistently (e.g., same button and key used for same function)**.**			
4.3 Input methods to navigate through the instructional content are accessible.			
4.4 If a particular lesson sequence is not required, a lesson menu provided to allow learners to access various lessons within the instructions.			

Guidelines	Applicable	Met	Comments
4.5 Learners able to exit a window, screen or the instruction whenever they wish without penalty.			
4.6 When exiting window or screen, upon re-entering returned to a logical point.			
5 Questions, Exercises and Tests			
5.1 Questions are: a) relevant, b) well spaced, c) promote response economy, d) emphasize comprehension, e) have variety and f) placed before or after the content.			
5.2 If question answering used, it is clear: a) how to respond, b) how to correct an answer, c) number of tries allowed and d) whether question can be left without answering.			
5.3 Results of the learner's choice displayed.			
5.4 Exercises relate clearly to the lesson objectives.			
5.5 Tests relate clearly to the end-of-course objectives.			
5.6 Capability provided to review the goals and data related to an exercise.			
5.7 Feedback provided for correctness of all question, exercise item and test item responses.			
5.8 Feedback is supportive, corrective, clear and identifies discrimination errors.			
5.9 Feedback is: a) of the appropriate type (text, graphic, markup, sound), b) attracts attention and c) is erasable when no longer needed.			
5.10 Prompt and feedback messages blend with, but do not complete with, the exercise.			
5.11 Replies provided that are varied and do not include disparaging feedback.			
5.12 Praise used sparingly.			
6 Learner Control and Interaction			
6.1 Unless inappropriate to the instructional strategy, the learner: a) controls the pace of instruction and b) is able to return to material previously visited.			

Guidelines	Applicable	Met	Comments
6.2 Temporary terminations and bookmarks available.			
6.3 If possible, learners able to enter comments in lesson material.			
6.4 Learner interaction: **a) frequent,** **b) comprehension enhanced,** **c) memory enhanced,** **d) transfer enhanced and** **e) provided by a variety of methods.**			
6.5 Learner interactions avoid creating false habits (i.e., not to teach misconceptions about the real world)**.**			
6.6 Modes of learner control are easy to use, intuitive and have as much in common as possible with the work environment.			
6.7 Directions provided on how to take the course.			
6.8 Clear instructions and adequate warm-up practice on the interactions learners will engage in provided.			
6.9 A review of interactions, controls and their operations available during an interactive exercise.			

Appendix G

EPSS Evaluation Checklist

INTRODUCTION

The EPSS Evaluation Checklist provided in this appendix contains a shortened version of the guidelines for Electronic Performance Support products described in Chapter 7. It is highly recommended that users of the checklist read and become familiar with the guidelines as stated in Chapter 7 before applying the checklist in the evaluation of a product. This checklist format is based on the checklist designed by the author for ISO 9241-14 (Menu dialogues) and used in ISO 9241, Part 12 through 17. The procedure for using the checklist is essentially a two stage process (i.e., determining which guidelines are applicable; and then whether those applicable guidelines have been met). The evaluation procedure should be based on an analysis of typical users, their typical and critical tasks, and their typical usage environments. Evaluations generally fall into the two following categories:

1. When users and user tasks are known, evaluators evaluate the document in the context of users accomplishing typical and critical tasks in a typical usage environment.
2. When specific users and user tasks are not known, evaluators evaluate the document in terms of meeting all of the guidelines that are expected to be relevant.

PROCESS

As noted above, the evaluation process is a two step process:

1. The first step in the evaluation process is to determine which guidelines are applicable. The applicability of a guideline is based on:

   a) Whether the conditional statement, if included as part of the guideline, is true. A particular recommendation is (or is not) applicable when the conditional if-statement is (or is not) true. For example, if it was appropriate for the task for the interface to observe performance (guideline 6.6), guideline 6.6 would not be applicable.
   b) How the design environment pertains to the guideline. A particular guideline may (or may not) be applicable because of user, task, environment, and technology features. For example, if the EPSS product did not have a knowledge component, the guidelines in 3 would not be applicable.

   The methods that are appropriate to determine applicability of a particular guideline include: system documentation analysis, documented evidence (e.g., prior studies), observation (the feature is included in the performance aid), analytical evaluation and empirical evaluation (see Chapter 8 for description of methods).

2. If a guideline is applicable on the basis of the criteria described above, the next step is to determine whether or not the guideline has been met. This can be determined by using one or more of the following methods: measurements (e.g., line width), observation, documented evidence, analytical evaluation or empirical evaluation.

Guidelines	Applicable	Met	Comments
1 General			
1.1 Application provides the overall context for the process or work by creating a "big picture."			
1.2 Business/organizational strategy and goals reinforced through advice, options or underlying logic incorporating business rules.			
1.3 Application aids in goal establishment by presenting explicit goal options (e.g., presents "what do you want to do" dialogs)**.**			
1.4 When appropriate, a means provided to compare goal options and consequences.			
1.5 Task centered work context established and maintained (employs task language and metaphors).			
1.6 Support for task progression or cognitive processing reflects most current and best known approach or content.			
1.7 Behavior, options, process, sequences and deliverables reflect the natural work situations and work flow (language, metaphors and actions).			
1.8 Application provides an interpretation of results, "Why did that happen?" "How did that happen?"			
1.9 Application utilizes a recognition approach, rather than recall of knowledge.			
2 Guidance Component			
2.1 Ongoing, dynamic, rich and explicit system or performer initiated advice provided based on data, time, options or performer behavior.			
2.2 Advice may be conditional, rule-based or "learned" and may be informational or directive.			
2.3 Content-sensitive access to support resources provided that do not break the task context.			
2.4 Whenever possible, support resources embedded within or immediately accessible from the primary displays.			
2.5 Information on the system, procedures, etc. tightly coupled to task context and			

Guidelines	Applicable	Met	Comments
available by context-sensitive access.			
2.6 Business logic and rationale access provided in a rich, dynamic and context sensitive form.			
2.7 Resources available concerning obvious options and next steps (e.g., "Show me" or "Tell me about" or "Do it" buttons)**.**			
2.8 Provides answers to descriptive questions, such as "What is this?" "What are the differences," functional questions such as "What does this do?" and procedural questions, such as "How do I?"			
2.9 If appropriate, support (coaching or guidance) provided when needed based on proactive monitoring of user actions by system.			
2.10 Guidance helps users make decisions and solve problems.			
2.11 Users able to get help that is geared to their actions and knowledge.			
3 Knowledge Component			
3.1 Alternative search and navigation mechanisms provided to optimize the user's ability to find appropriate information.			
3.2 User able to search for answers to questions.			
3.3 Information layered to support performer diversity in prior knowledge, goals, motivation, available time and style.			
3.4 Access provided to underlying logic.			
3.5 Only relevant information provided.			
3.6 Users able to access a knowledge base relevant to their job tasks.			
3.7 Users able to obtain definitions for terms, objects and system components.			
3.8 Information provided to allow users to understand concepts.			
4 Instructional Component			
4.1 Instruction provided as necessary for users to learn to perform job tasks supported by applications that are difficult or rarely done.			
4.2 Instruction interactive and specifically aimed at supporting job tasks and improving performance.			
4.3 Unnecessary content avoided (in order to minimize time away from the job)**.**			

Guidelines	Applicable	Met	Comments
4.4 Instruction provides practice on the task (using real or simulated system components) and provides appropriate feedback on performance.			
4.5 Available instruction accessible on demand by the user.			
4.6 If appropriate, the system provides instruction on the basis of apparent user difficulties.			
4.7 Instruction includes the use of the guidance and knowledge components when appropriate.			
5 Automation Component			
5.1 Where possible, data, cognitive and judgment tasks automated.			
5.2 Tasks automated when users: a) do not like to perform them (e.g., are tedious and repetitive), or b) perform poorly.			
5.3 Tasks automated that require: a) forms-processing or document generation, b) repetitive distribution of standard information or c) calculations.			
6 User Interface Component			
6.1 User interface provides access to all of the EPSS components in a straightforward and consistent manner.			
6.2 Elements of the EPSS integrated in the interface to provide a meaningful and whole context for the user to work within.			
6.3 Structure provided for the work process and progression through tasks and logic based on the proper or best known task or process sequence.			
6.4 Metaphors and direct manipulation of variables used (to capitalize on previous learning and physical reality)**.**			
6.5 If appropriate to the task, the user interface observes performer context, prior decisions and physical interactions with the system.			
6.6 Alternative views of the interface and support resources provided to present a broad range of structure and freedom to the user.			

Guidelines	Applicable	Met	Comments
6.7 Interface provides evidence of task progression or conditions, or evidence of accumulated choices and system-generated outcomes.			
6.8 User able to tell where they are in the process.			
6.9 Rich, varied, explicit and continuous feedback provided related to performer actions, data, task requirements, performer attributes, etc.			
6.10 Feedback provided on what user did and where user has been.			
6.11 Primary displays contain embedded knowledge (e.g., obvious options, next steps, content displayed in multiple forms)**.**			
6.12 Business knowledge and rules incorporated into displays, underlying system or programming logic.			
6.13 Where possible, customization of displays, task sequences, language and system behavior allowed according to individual differences and needs.			
6.14 Interface employs consistent interface conventions, language, visual positioning, navigation and other system behavior.			
6.15 Interface is forgiving (i.e., lets user make mistake, go back to previous state).			
6.16 Visual appearance of interface suggests its use.			
6.17 Relevant interface guidelines and standards are met (e.g., HFES 200.3 Interaction Techniques)**.**			