

# Guidelines for Building a Usable Animation in Computer-Aided Presentations

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## Introduction

Office automation today provides a wide variety of software tools for multimedia sophisticated computer-aided presentations (e.g., Microsoft PowerPoint, Aldus Persuasion, Astound, Harvard Graphics). Although these software tools empower users with several dynamic multimedia capabilities such as multimedia incorporation, text compilation, screen transition (Fig. 1), predefined or personalized animations, sound effects, they do not support them when they face the problem of how to use them, which one to use, for which purpose. Moreover, little or no support is given to choose a dynamic capability that is appropriate to the message to be conveyed and to the medium used (e.g., slides, computer-aided presentations).

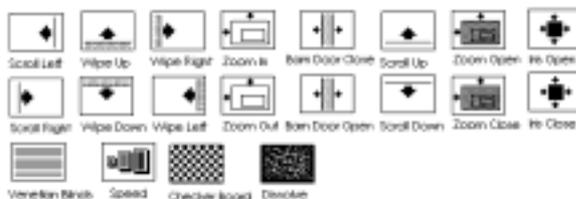


Figure 1. Some examples of screen transitions.

To help solving this problem, three inspiration sources are possible:

1. some research is conducted in the domain of multimedia in general or in several aspects related to dynamic multimedia capabilities in particular, such as animation (Bay-Wei & David 1993) and real-time simulation (Dunn 1973); these very important research results need to be transformed into guidelines that directly refer to appropriate parameters (e.g., message type, medium used, type of dynamic multimedia capability, duration, effect, impact). This transformation is varying from one software to another as soon as two different software are using different vocabularies to specify a particular capability;
2. traditional user interface design guidelines

(Brown 1988; Vanderdonckt & Gillo 1994) contain some guidelines that can be useful for this particular domain, but they are not directly adapted or expressed for the purpose of selecting a dynamic multimedia capability. Multimedia design guidelines (Park & Hannafin 1993) are much more specific and directly useful, although they generally focus on the different media themselves rather than the selection of one of them or a combination of them;

3. experience gained in using such software can shed some valuable light on the different

Our goal is to reach a first basic set of guidelines for computer-aided presentation that combine results coming from these three sources and that mention the kind of confidence already acquired. The aim of this short paper is to present this first basic set and to discuss how researchers, practitioners and attendees of such computer-aided presentations perceive their application.

## A Basic Set of Guidelines

This basic set is composed of two parts:

1. a definition and illustration of commonly used dynamic multimedia capabilities in software- or hardware-independent terms. For example, Table 1 shows some possible screen transitions with their usage;
2. a taxonomy of guidelines with, for each of them,
  - an identifier in the taxonomy,
  - a guideline statement in one concise sentence,
  - a more detailed description of the purpose,
  - a rationale of the guideline: if the guideline is supported by empirical results for a particular context (case 1 above), these results are summarized and reported; if no empirical results are already available, the reasoning followed to derive the specific guideline from traditional user interface design guidelines is explained, for instance a theoretical analysis

of the guideline with respect to concepts of cognitive psychology (Gardiner & Christie 1987) (case 2 above); if such a reasoning cannot rely on the existing literature, then how the guideline has been drawn from the experience is reported (case 3 above). In all cases, the level of confidence is explicitly provided to inform the person to what extent s/he can trust the guideline.

- a link to bibliographical references that support the statement of this guideline: it could be empirical results, an existing recommendation or a transformed guideline,
- a series of positive examples where the guideline is correctly applied and of negative examples where the guidelines is not applied or wrongly considered.

	Horizontal scroll from right: to display the next screen, the next piece of information in a series of objects
	Horizontal scroll from left: to display the previous screen, the previous piece of information in a series of objects
	Vertical scroll from bottom: to proceed with a step-by-step reasoning, a continuous subject or a long passing over
	Vertical scroll from top: to move back in a step-by-step reasoning, a continuous subject or a long passing over
	Venetian blinds: to present a completely different topic, to provide a feeling of coordinated time
	Bam door close: to close a transient screen (e.g., an information screen, the about... splash screen), to close a current scene, to signify game over
	Bam door open: to open a transient screen, to initiate a new step, to open a new window, to launch a game, a simulation
	Diagonal replacement from top left corner
	Diagonal replacement from bottom left corner: to go back to the previous page or screen
	Diagonal replacement from top right corner
	Diagonal replacement from bottom right corner: to move to next page or screen

	Iris open: to show more detailed information about a particular topic
	Iris close: to show more general information about a particular topic

Table 1. Some definitions of screen transitions.

Here are some examples of such guidelines: “Use cinematographic effects in screen transitions”, “Screen transitions should be appropriate”, “Use screen transitions consistently”, “Maximize visual continuity between similar screens”, “Foster symmetrical screen transitions for disclosure”, “The screen transition smooth should reflect the transition level”, “Screen transitions should be sounded according to the depth level”, “Sounds should be limited in time”, “Use a same metaphor for all sounds”, “Minimize text overlapping during compilation”, “Adapt text introduction according to the message contents”, “Progressively and continuously reveal graphics”.

## References

- Bay-Wei, Ch. & David, U. (1993). Animation: From Cartoons to the User Interface. In *Proc. of the 4<sup>th</sup> Annual Symposium on User Interface Software and Technology (UIST'93, 1993)*, pp. 45-55. New York: ACM Press.
- Brown, C.M. (1988). *Human-Computer Interface Design Guidelines*. Berkeley: Ablex Publishing Corp.
- Dunn, C. (1973). The Use of Real-Time Simulation by Means of Animation Film as an Analytical Design Tool in Certain Spatio-Temporal Situations. *Ergonomics*, 16, 515–519.
- Gardiner, M. & Christie, B. (1987). *Applying Cognitive Psychology to User Interface Design*. New York: John Wiley & Sons.
- Park, I. & Hannafin, M. (1993). Empirically-Based Guidelines for the Design of Interactive Multimedia. *Educational Technology Research and Development*, 41(3), 63–85.
- Scapin, D.L. (1990). Organizing Human Factors Knowledge for the Evaluation and Design of Interfaces. *International Journal of Man-Machines Studies*, 2(3), 203–229.
- Vanderdonckt, J. & Gillo, X. (1994). Visual Techniques for Traditional and Multimedia Layouts. In *Proc. of 2<sup>nd</sup> Workshop on Advanced Visual Interfaces (AVI'94, Pisa, June 1-4, 1994)*, pp. 95-104. New York: ACM Press. Accessible at <http://www.info.fundp.ac.be/cgi-publi/pub-spec-paper?RP-94-022>