Evaluating Multimedia CD-ROM Discware: Of Bells, Whistles And VALUE

by Layne Nordgren

Multimedia CD-ROM discware is so recent that there are few critical reviews of the products. Furthermore, the criteria and methodology for evaluating multimedia discs have not been clearly defined. Multimedia is a hybrid technology from three formerly separate fields: computing, broadcasting, and publishing. Nicholas Negroponte of the MIT Media Lab illustrates the three merging technologies as overlapping circles or teething rings [2] (see Figure). The overlapping circles are areas of interchange and overlap of the fields. The center area, the multimedia area, is where all three technologies overlap. While it is desirable to extract and recombine relevant evaluation criteria and methodologies from print, computing, and broadcasting fields, additional methods and criteria specific for multimedia discware will need to be developed. Here I suggest a beginning set of multimedia criteria and propose a methodology for evaluating multimedia discs.

TEN CRITERIA FOR EVALUATING MULTIMEDIA DISCWARE

A number of checklists are available to evaluate similar kinds of products.

For computer software evaluation, Glossbrenner and Brownstein and Lerner provide appropriate methodologies and criteria [4,7]. Heinich, et. al. do the same for a variety of media formats from the broadcast field [8]. General CD-ROM evaluation checklists from Stewart, Desmarais, Elshami, and Nicholls might be also be consulted [5,6,20,26].

FIGURE
Areas Of Overlap And Merging In Publishing, Broadcasting, And Computing Technologies (After Negroponte [2])

- Multimedia Technologies
- Overlapping Technologies
- Publishing
- Computing
- Broadcasting
TOWARD MORE RIGOROUS REVIEWS OF MULTIMEDIA DISCWARE

James Sweetland notes that in the library review process, there is a general lack of comparison to other works, with most reviews being favorable. There are few mixed reviews and even fewer negative reviews. The same situation seems to be occurring for multimedia CD-ROM titles. Reviews are for the most part cheerleading sessions emphasizing the bells and whales rather than the content, value, and effective integration of media into products.

To become perceptive and demanding consumers of multimedia discware, we must have a good general background in the design of user interfaces. We need to identify and describe the most important criteria for assessing multimedia materials and develop checklists and other methods of assessment.

Perhaps it is time to make it clear to multimedia producers that we don’t want or value products with meaningless, and thus valueless bells, and whistles. While these kinds of products might run a certain hardware configuration through its paces, do users really want this kind of junk in the products they use? Would a book designer place a picture on a page that had no meaningful relationship or context to other content on the page? If the choice is between trivial bells and whistles versus improvements to important “ease of use” issues, I vote for spending development time on the latter.

REFERENCES


5. Install The Product
Install the product on the hardware configuration you're most likely to use. Keep copious notes in your log about how the installation works (or doesn't work). At this point, you may need to jump to step eight to get help. If you're adventurous, try running the product on different hardware configurations or networks. Mixing and matching different sound boards, video cards, and device drivers really puts the installation procedure to a good test. Not only can you tell whether or not the software will run under different configurations, but you get some indication of what factors influence the performance of the product.

6. Test Drive The Product
Begin using the product with special attention to the multimedia criteria described previously. Even though checklists help in determining what questions to ask, you may want to figure out specific and sequential scripts of the things you want to do with the product. For instance, in evaluating a multimedia dictionary, you might develop a script that includes the following steps:
- look up specific word
- listen to pronunciation
- examine pronunciation guide
- find definition of another word in the definition
- compare the two definitions
- print the definitions side by side
- examine your pathway backwards through the information.

Using scripts will very quickly expose strengths as well as weaknesses of the product, especially when assessing the integration of multimedia components.

7. Throw It To The Guinea Pigs
After you've tested the product yourself, find others to try it out. Select your guinea pigs from a population of likely users that the product targets. If you can, include types that are technophobic and technophilic, computer literate and beginners, staff and patrons, etc. By selecting a broad range of potential users, you may be able to collect information and comments that you may have never considered yourself. Evaluation can "offer insight into patron preference for information access and delivery, and can point out directions for marketing the product within your own institution" [14]. If you can, let others try out the product and hang back as a quiet observer, taking in the various perspectives and comments. Summarize the comments and problems in your log.

8. Send For Help
If this is the first time you have reached this step of the process in a sequential manner, you must lead a charmed life! This assumes that you haven't already had to refer to printed, online or telephone help which is likely to happen in step five. Organize your questions and problems from your log. You might even throw in a few questions you already know the answers to so that you can assess the effectiveness of the support offered. Using the same questions, assess the effectiveness of online help, printed documentation, and customer support. Keep detailed notes of where you found the answer, who you talked to, and how they responded.

Perry lists "embarrassing questions to ask the software vendor . . . It is far better to embarrass the salesperson [support personnel] with questions they cannot properly answer than to be personally embarrassed by purchasing a useless software package" [23]. The intention should not be to embarrass the support person, but to avoid shying away from the difficult questions. Most tech support people I talk to are very willing to candidly discuss both strengths and weaknesses of their products. This is also a time when you may be able to delicately point out some areas that might be changed or mention items on your wish list. Support services of the best products will probably already have anticipated your enhancement suggestions and may even have incorporated some of them into the development of a new version.

9. Decide If You Like It
Before I review and summarize the data I've collected in the previous steps, I ask myself "What is your gut-level impression of the product? Do you like it or not?" By asking these two questions, I intentionally focus on the emotional rather than the objective aspects of my experience with the product.

Both audio and visual media are interpreted by the emotional, integrating, overwhelming right brain as well as by the rational, objective, sequential left brain. In her book, Philosophy in a New Key, Suzanne Langer states that "... visual forms are not discursive. They do not present their constituents successively, but simultaneously, so the relation determining a visual structure is grasped in one act of vision." In my experiences evaluating multimedia discs, people looking at the discs either like them or not, even though they may not be able to explain why. Even three-year-olds make on-target assessments, though they may not be able to articulate their thoughts as well. While objective assessment plays a dominant role in the evaluation of text material, the emotive assessment has a more important role in the evaluation of multimedia components of a disc.

Next I focus on the qualitative data collected and logged in the previous steps. This process usually uncovers rational justification for my overall emotional assessment. Some reviewers of computer software [23] suggest weighting each criterion and assigning quantitative ratings to each. Though this approach provides some quantification, the basic assumption is that the criteria can be measured on a scale and that you have comparative data with which to assign a numerical value. Unfortunately, the multimedia field is so new and diverse that it would appear to be impossible at this point to establish standardized lists of questions that could be applied to all products. In addition, assigning a weight and numerical rating might imply that one has an objective scale based on comparisons with other similar products. Many multimedia products today are the only ones of their kind, so comparison, at least on a strictly quantitative basis would appear to be premature.
multimedia product. It is organized in a sequential, step-wise fashion so that if you encounter any fatal errors, you can bail out before performing unnecessary steps. An example of a bailout point might be at step one when you find you can’t afford the extra $1000 of hardware needed for boards, compatible video boards, CD-ROM drive speeds, and system driver software needed to run the disc. While some multimedia products will run on basic CD-ROM workstations, most require additional hardware and extensions for full functionality and adequate performance.

2. Examine Critical Reviews
Find critical reviews of the products you want to evaluate. Multimedia discs are so new that critical reviews are scarce. The “Selective List Of Publications” box gives a list of publications which often carry multimedia CD-ROM product announcements and reviews. Nicholls includes citations of reviews of the titles he lists [20,21]. If no reviews are available then you can review it yourself or decide that it may not be worth agonizing over low-priced titles. As another alternative, ask the distributor for the names and phone numbers of other users you might contact to broaden your perspective.

3. Log Questions, Problems And Comments
At this point, you probably have some questions about the product, what it does and what others have said. Prior to digging in and evaluating the product, it may be useful to compile and use a checklist of what you really think the product should do for you based on company claims and your proposed use. King has a good personal cribsheet to stimulate brainstorming on your general questions [13]. The box “General Questions To Ask Before Reviewing A Disc” contains a modified version of some of these questions. Use it as a starting point for customizing the process to your own personal or institutional environment.

Start a log listing any questions, problems, or comments and continue using this log throughout the rest of the process. The log will become especially helpful in problem solving and talking with customer support personnel. In the final evaluation it will provide a wealth of information for review.

4. Get A Review Copy
Ask the producer or distributor for a review copy of the product.

This is your first indication of the kind of support you will receive from the company. While some producers provide inexpensive floppy disk demo versions of their discs, these don’t really help in the evaluation process other than let you know what the producer expects them to do and what they want you to see. King compares evaluation using demonstration disks, working models, and the real thing [14]. Get the real thing if you can. If you can’t get a working copy from the producer, then borrow one from a friend, a colleague, or a computer store.

A good rationale for convincing producers or distributors that you really need to review a copy is to use the lack of hardware standards argument. Many different hardware and software configurations are possible and a producer can’t possibly test all the combinations. Since “standard” hardware configurations for multimedia seem to be changing so rapidly, the only way to assess whether the product will run at all on your particular hardware configuration is to try it.

I agree with LaGuardia and Huber that we need better, more trouble-free try-out policies from producers and distributors [15,16]. However, after talking with some distributors, I understand their reluctance to send out products. Distributors describe the many times they’ve been burned and the amount of time it takes to track evaluation copies and plead for their return. We, as users, need to establish more credibility as a group by not taking advantage of review policies that exist.

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General Questions To Ask Before Reviewing A Disc
(Modified from King [13])

1. What do you want it to do?
2. What need will it fill?
3. How will it fit into other library resources?
4. Who will use it?
5. Is it available in other media?
6. How will library resources and services be affected?
7. To whom is it targeted?
Questions To Ask When Assessing Effectiveness Of Documentation  
(Modified from Kanter [12])

1. Are installation instructions simple?
2. Is there a graphic overview of the product's capabilities?
3. Are essential instructions easily accessed in the manual or buried in text?
4. Is there a Quick Start document? Is it in a form that can be reproduced with a copy machine for use at a public workstation?
5. Are more advanced techniques covered separately?
6. Are instructions available that describe how the product will actually be used?
7. Is there a typographical distinction between user keystrokes and system responses?
8. Are sample shots and examples available to provide the user feedback on how things should look?
9. Are pointers such as tables of contents and indexes available to help users navigate through the material?

7. Integration Of Media
“IT glistens, but it stinks.” —Oscar Wilde, referring to the dead fish glistening in the moonlight.
Examine how well media components are integrated into the design of the product:
- Can the media be accessed from a single interface or is it necessary to use different search tools for accessing each media type?
- How are the media organized, played back and linked to one another?
- Are there cross-references among different media types?
Nicholls describes most of today's CD-ROM multimedia titles as multimedia with a little “m” [19]. Many of these incorporate graphics, photos and sound as tack-on features. But few are designed specifically for Multimedia with a capital “M” where the additional media components are an integral part of the design of the entire product. In many products, the multimedia components add little substantive content value to the products. As Brooks notes, “It is far easier for publishers to scan and add 100 color photographs to a CD-ROM database, thereby embracing the right ‘buzzwords’ . . .” [3].
Perhaps the real buzzword is “repackaging” rather than true integration of the multimedia components into the products. Douglas Adams says that organization is lacking in such products, “so you are simply invited to make your own journey through someone else’s unstructured subset of the data. Acquiring multimedia capability is like suddenly having the letters F, G, H, and I added to the alphabet after not having them before” [24].
Shel Silverstein's poem “Senses” from A Light in the Attic provides a fitting description of the effectiveness of multimedia integration of many of the current multimedia titles:

A Mouth was talking to a Nose and an Eye.
A passing listening ear
Said, "Pardon me, but you spoke so loud, I couldn't help but overhear."
But the Mouth just closed and the Nose turned up
And the Eye just looked away,
And the ear with nothing more to hear
Went sadly on its way.

8. Output Pathways
Map out your export capabilities for sound, graphics, animation, and video as well as for text:
- Can graphics be output to printer or to disk?
- Can media files be accessed directly from disc?
- Where does sound and video come out?
- Can media materials be tagged and bookmarked or saved for later use and export?
- Are there options to the file types and quality of output?

9. Product Support
“There is a time to be alone, and a time to be with vendor software support personnel—when you are having a problem with application software is no time to be alone.” —William E. Perry, [23].
Assess the effectiveness of online help, documentation, and customer support services:
- Is there online help? Is it thorough and well organized? Does it include help for all the media types?
- Is there an online tutorial? Is it keyword searchable? Is it context-sensitive? Does it have hypermedia links?
- Is help accessible from every screen?
- How thorough is the paper documentation? Does it include adequate descriptions of media components?
- How effective is customer support? Can you get to a real person rather than an answering service when you need help?
- Is service available during reasonable business hours?
- Are the technicians knowledgeable and helpful? Do they understand multimedia hardware configurations and problem solving? Do they follow through with problems they can't answer immediately?
- What is the vendor's policy for upgrades of software, content, etc.? LaGuardia and Huber provide an excellent list of other basic support needs [16].

10. Overall Value
Measure the overall value of the product as a whole compared to its price:
- Are excellence and innovation apparent in the design of the product?
- How useful is the product for its target audience?
- How does the product compare with other similar multimedia and/or text discware?
- Does the product match the claims of its advertising?
- How will the product be integrated into present institutional or personal resources? Does the disc's price match its value in a particular application?
- What are the strengths and weaknesses of the disc? What was your overall impression and recommendation of the disc?

A METHODOLOGY FOR EVALUATING MULTIMEDIA DISCS
The following is the progression of steps I take when evaluating a
• Are voice, music, animations, and video synchronized?
• Is synchronization tolerant of different CPU speeds if you switch from one machine to another?
• Can you easily break out of introductory segues?
• Does music continue playing until finished?

When it comes to understanding and using software “You’re not the stupid one” [7]. The software designer should be handed that distinction if warranted. Hawkins says that software should let the user “wade into the software as into the ocean [21]. The user will swim when ready.” And John Sculley suggests that good interfaces let the user “skim the surface, occasionally diving in to incredible depths when we choose” [25].

4. Multimedia Searching
Evaluate the text searching capabilities of the software. Other discussions of CD-ROM evaluation can be consulted to find criteria for evaluating text-based searching [5,6,20,26]. Examine the access and retrieval capabilities of the software for graphics, photographs, animations, sounds, and video:
• How are the various media types organized, titled, indexed, abstracted and displayed?
• Can you search multiple media simultaneously?
• Do you always have to see pictures or hear sounds when viewing text?
• Can different media be searched and then displayed side by side for comparison?
• Can your path through the media be saved or backtracked?
• Can various media types be selectively filtered or limited by media type?
• What is the response time for retrieving various formats of media?

Mark Heyer says that we must have grazing, browsing, and hunting tools for effectively gathering information [11]. These kinds of tools are still being developed and improved for static text, but development of effective browsing and hunting tools for dynamic media is in its infancy. In an analog medium such as videotape, hunting tools with immediate response are not possible because of the linear nature of the medium. Digital media makes hunting tools possible, but the content and standards for describing access points in a dynamic medium still need to be developed.

5. User Feedback
“In Paris, they simply stared when I spoke to them in French. I never did succeed in making those idiots understand their language.” —Mark Twain
Assess the feedback you receive from the program:
• How do you know when something is happening?
• How do you know what actions you have taken?
• Do you receive any feedback during the inevitable delays in searching and loading images, sounds, animations or video sequences?
• Can processing or loading be interrupted, suspended or aborted?
• Are prompts and error messages comprehensible?

Feedback is a subtle but important characteristic of multimedia. Minor responses may be all that is needed, just as in a good conversation. Good software provides feedback to the user that something is happening and the machine is not just hung and needs to be rebooted.

6. Scope And Quality Of Multimedia Content
Measure the comprehensiveness and quality of the multimedia content in the product. This can be layered over an evaluation of the text content. Nicholls has a good checklist for evaluating text sources [20]. Berry reports that in selecting CD-ROMs, public libraries rank accuracy of information/authoritativeness as the top criterion [1]. This would also be a good criterion to apply to the multimedia components:
• What is the composition of the multimedia components (numbers and types of images, minutes of sound, animation, video, etc.)?
• How is the content organized? Do media components make any significant enhancement to the overall value of the disc?
• Are credits available for photos, video clips, sounds, etc.?
• What is the technical quality of the media?
• How well are colors, transitions, segues, etc., implemented?
• How well would the product fit into a curriculum or personal collection? How unique is it?
• Does a print counterpart exist and what added value is provided over a print version?
• How often is the product updated and how much does it cost?

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Multimedia components of discs are often in a dynamic mode rather than the static mode of text, requiring different vocabulary, methods, and criteria. According to Large, many criteria applied to the evaluation of printed reference sources can be applied to online and CD-ROM sources [17]. But those criteria which are especially significant to the format should be emphasized. It follows then that criteria for evaluating multimedia discware may be layered onto the relevant criteria used for evaluating text-based CD-ROMs. However, certain significant multimedia features must be emphasized.

The following criteria are not meant to be a definitive checklist, but rather a starting point for establishing your own criteria. Multimedia discware is too diverse to categorize and condense criteria into checklists. As you review a disc, you will have to assess the weight of each criterion in evaluating the particular disc. The criteria I list here are based on a personal rather than an institutional assessment of multimedia discs as a resource. However, the work of Herther, Littlejohn and Parker can be adapted to focus the criteria toward an institutional framework with budgeting, curriculum, hardware compatibility, and support issues [9,10,18].

1. Hardware Requirements
Assess the range of hardware that will run the application with acceptable performance:

- What kind of sound boards are compatible?
- Where is the sound channeled?
- Will the disc perform well on networks?
- Will the disc run on multiple hardware platforms?
- What kind of Input devices and drivers are required?
- Will drivers coexist peacefully with other drivers?

2. Ease Of Installation
Using the supplied instructions, install the program. Test all media channels (video display, sound board, video board, MIDI, etc.) to make sure they work:

- How easy is it to install the program?
- Is the installation clearly documented?
- Does the documentation clearly indicate additional sources of help such as online help, other manuals, telephone support numbers, etc.?
- Where are application program and settings files stored? How much space do they take?
- Do the different species of software mix and match and still behave themselves?

- Can setups be customized and saved?

The best designed products coexist peacefully with other software and discware configurations. LaGuardia, Huber and Parker describe the installation criteria of good CD-ROM discs [16,22].

3. Navigation And Presentation
"Everything should be as simple as possible, but no simpler."—Albert Einstein.

Begin navigating through the disc and work your way through the content:

- Is the interface intuitive?
- Is it apparent to users what actions can be taken?
- Does the application use standard conventions?
- Are screens, prompts and commands easy to understand?
- How do you know where you are from any screen?
- How do you go forward, backward, backtrack, or get out?
- Are there hypermedia links from one part of the program to another?
- Is there a comprehensible road map?
- Are there separate or integrated pathways through text, graphics, sound, and video?
- Are navigation icons easily accessible without excess mouse travel?
- Are there function keys or key combination shortcuts?

Identify characteristics of the displays:

- Are displays legible with effective use of colors?
- Is there extra clutter? Are icons intuitive and not culturally biased?
- Can graphics and video windows be resized and scrolled effectively?
- Can text be displayed using different fonts and sizes?
- Is highlighting consistent and effective?

Assess media controls:

- How is audio volume, direction, and channel controlled and output?
- Are standard symbols used for "remote control" functions like forward, reverse, play, etc.?