DESIGN EDUCATION, NEW MEDIA, AND DISTANCE LEARNING:
AN INTERACTIVE MULTIMEDIA PROGRAM IN DESIGN HISTORY

A Thesis Project

Presented in Partial Fulfillment of the Requirements for
the Degree Master of Arts in the
Graduate School of The Ohio State University

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*****

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As teaching professionals, we have a responsibility to vigorously encourage our students to explore, research, experiment and discover. As more and more students aspire to become designers, it will become essential that we maintain quality, strong values, and high expectations. By providing a valuable supplement to design education curriculum, students will be better prepared for entry into professional practice.

Interactive multimedia and the Internet are primarily visual media. Its incorporation into design education is a logical one. The advantages these media may offer may begin to change the paradigm in design education.

This thesis project, which includes the design and production of an interactive CD-ROM featuring an interdisciplinary history of design, examines the use of this new media in a classroom setting. The project was developed in two phases. The first phase of the project discusses the administrative and technical requirements necessary to design, develop and deliver an interactive multimedia program to students. This includes an evaluation of current multimedia authoring software and outlines the production process involved.

Phase two attempts to simulate a distance learning program by implementing the program as a part of the course curriculum for ID 253 Design History. Design students at The Ohio State University utilized the program for a period of two weeks. During this time they were not required to attend their regularly scheduled class time.
At the end of two weeks, students were then tested on the content of the CD-ROM program. Following this test, the program was evaluated for its effectiveness on different learning styles and its most useful application in a learning environment. Positive and negative program attributes are discussed as well as an overall assessment of the program's success (or failure). Recommendations are presented from the perspectives of students and teaching faculty with a conclusion on future projections for the use of this media.
Dedicated to Gail,
Diahann, Dorothy, and Repp
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I wish to thank my advisor, Noel Mayo for his intellectual guidance, financial support and leadership. I cherish our candid dialogue on design education, professional practice, and new business strategies. Our shared interest in distance learning programs has allowed this idea to come to fruition. Without Dr. Mayo’s assistance and direction, my long-term goals as a designer may never have been fully realized.

I thank Susan Roth for her interests in my work as a designer, author, and educator. Her interest in integrating technology into teaching has had a direct effect on my thesis research. Her experience as an author and educator has been a tremendous reference in this period of academic growth. I appreciate her attitude towards the expanded inclusion of African Americans and women in design history literature.

I am grateful to David Bull for his inspiring design work and passion for design education. He has heightened my sense of semiotics, semantics and pragmatics, as they relate to visual language and communication. His depth of knowledge in design history has guided me in the development of the CD-ROM content. Without Professor Bull extending his course curriculum to include my research, this thesis would not have been possible.

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Finally, I owe a huge debt of gratitude to my wife Gail, who has shown patience and resolve through this entire process.
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INTRODUCTION

We have seen a proliferation of students interested in studying the design arts. This can be attributed to the exponential growth of the personal computer, expanded communications media and new cultural forces. There are several strong graphic design programs around the country that the student can select for study. Some of these programs have been in existence for more than twenty-five years. With the exception of the integration of electronic media, there has not been much change in design curriculum. Graphic design programs in most of these institutions encompass the combination of words, numbers, symbols, drawings, photographs, and diagrams to communicate ideas and emotions.

Students work in several media and venues: from handmade to digital images, from still based images to time-based communications, from print applications to cyberspace. Programs combine exploratory and experimental studies in typography, drawing, color, photography, and emerging technologies. Some curriculums supplement instruction with special lectures from area professionals. The ultimate goal is to prepare students for entry-level positions in the field.

Much of the emphasis in design curriculum course work is placed on the studio element. Often times, the liberal arts and humanities are approached by students with a secondary effort. We must begin to consider ways to encourage and motivate students to make an equal commitment to both areas of study. I was involved in a study under the direction of Dr. Liz Sanders in January of 1998. The purpose of the study was to analyze the current state of undergraduate design curriculum. The results of the study revealed
that several professional placement services and employers expressed a desire for entry level designers to be better schooled in the humanities.

In order for educators to accomplish this, it is my belief that we must recognize the different learning styles of students. Some learn by listening, some by doing, some by watching, and so forth. Keeping this in mind, I pose the questions:

- Are there ways to incorporate the engagement of studio based learning into courses traditionally delivered in a lecture based setting?
- Can the use of technology have a positive effect on certain learning styles?

During the above mentioned research project on design curricula, I discovered that many design programs did not include design history as a required course. Other schools had just recently incorporated design history into their programs. This struck me as being very odd. Why was a discipline so rich with history, images and artifacts, not being celebrated within course curriculum?

Further probing on the subject revealed that students who did have design history as a part of their curriculum were not particularly happy with the course. Students surveyed at The Ohio State University cited the following reasons for their disapproval:

- Class size (60 students) was not conducive to learning
- Class size put tremendous demand on a single faculty member
- Constraints of the quarter did not allow adequate time for comprehensive study
- Lecture setting was difficult because it promoted little interaction

These recent revelations presented an opportunity to solve several problems in one thesis program. Could technology be used to enhance the learning experience for students while at the same time alleviating some of the demands on teaching faculty? Additionally, is there a way to enhance the delivery of design history using interactive multimedia? It is my intent to prove that in the right context, this is precisely what can happen. This has lead me to the development of the following thesis project:

**Design Education, New Media, and Distance Learning:**
*An Interactive Multimedia Program in Design History*
The Importance of Interaction

Interaction is one of the higher order levels of feedback that behaviorists and cognitivists agree are important in the educational process (Mory, 1992). Those who see education as a construct would also include feedback and more importantly interaction as a needed feature in education (Bruner, 1990; Laurillard, 1993).

In the face-to-face mode of course delivery it is an assumption that learners learn through a combination of interaction with the learning materials and their teachers. How a learner learns is a product of a combination of factors that include the learner’s maturity, the learning materials, the teacher and other factors such as the support the learner is getting for their learning endeavors.

If we look at a range of delivery options, the ability of the learner to interact with material and teacher varies. For example, even in the face-to-face mode of teaching the availability of interaction ranges from a one-on-one consultation between the teacher and the learner, a one-to-many interaction between a teacher and a class or group, to the questionable interaction between a lecturer in a classroom with 60+ learners.

Underlying the delivery question and the potential to interact is the economy of scale that might be involved. It is obvious that a one-on one interaction between a learner and a teacher is possibly more expensive than a one-to-many tutorial where the answers by the teacher or the inquiries of the learners can be shared among the larger audience of the class (Forsyth, 1996).

Several different audio/visual media that can apply interactivity exist, each having their pros and cons. The media of CD-ROM was chosen for this project because it avoids some of the shortcomings associated with Internet delivery and videotape. With CD-ROM delivery, students would not have to clear the hurdles of access time, connection speeds, and slow audio streaming. Furthermore, CD-ROM production is much less expensive than videotape production, and can be instantaneously viewed in a linear or multilinear fashion unlike videotape.
Project Goals

Upon completion of this thesis project, I plan to meet several goals that will benefit my professional growth, teaching faculty, and the department of Industrial, Interior and Visual Communication Design at The Ohio State University:

• Incorporate the use of interactive multimedia in a classroom setting
• Develop a CD-ROM prototype for use in Design History courses
• Provide a valuable supplement to current design history curricula
• Improve the learning experience for active learners in courses traditionally delivered in a lecture setting
• Increase retention of historical information for students
• Raise the level of student awareness of design history and its social relevance
• Eliminate teaching as “telling” and inspire more discovery, engagement and experimentation in students
• Create a virtual learning environment that will not be restricted by class size or time
• Provide an opportunity for students to study and receive instruction from remote locations

Meeting the above mentioned goals will yield the following benefits:

• Fewer demands on teaching faculty
• Course will no longer be solely dependent on specific individual faculty
• Introduction of additional concepts in design curriculum such as business and marketing
• Opportunities to include new/diverse content into design history curriculum
• Future development of a central resource for design history and image bank
• National distribution
• Interface between secondary and post secondary design education
• Expanded connection via the Internet
Procedures/Logistics

The following outlines the procedures utilized to accomplish the goals and objectives of the thesis project; the development of a CD-ROM to serve as a valuable supplement for undergraduate design education in a lecture setting. This program could potentially be a precursor to Internet course delivery. The project logistics are as follows:

- Examine the administrative considerations of offering course material delivered via interactive CD-ROM (and possible Internet)
- Identify appropriate lecture base course for prototype (Design History 253)
- Through qualitative and quantitative research methodology, establish benchmarks for appropriateness, content and direction
- Organize visuals and text to covert into electronic media
- Full development and production of CD-ROM
- Pretest and evaluation
- Implementation into course curriculum
- Evaluate effectiveness through quantitative studies.
- Conduct an on going literature search and review in the areas of design education, design history, theory and methodology
- Conduct an on going literature search and review in the area of educational content delivered via interactive multimedia, the Internet, and distance learning programs

Research Methodology

Quantitative surveys were used as the primary method of information gathering. These surveys were supplemented with qualitative interviews from participants and teaching faculty. The participants were students enrolled in course ID 253 Design History at The Ohio State University. This course was instructed by Professor David Bull in the autumn quarter of 1998 and is a requirement for all students in the department of Industrial, Interior, and Visual Communication Design.
CHAPTER 2

CD PRODUCTION PROCESS

This first stage in this thesis project was to develop a comprehensive CD-ROM for a portion of Industrial Design course 253, Design History. Professor David Bull and I reviewed the course curriculum and decided to section the course into five (5) two week modules. The CD-ROM program would be implemented during the fourth module of the quarter. We determined that the periods of Art Deco, Streamlining, and Design in America from 1950 to 1970 would be the basis of the program’s content. The chronology of the course had as much to do with this decision as any other factor.

One of the primary objectives was to develop this as a cross platform program. Pre-implementation surveys revealed that 80% of students enrolled in Design History 253 were using or would be using Windows/PC computers. In order to truly simulate a distance learning program it was necessary to accommodate both computer platform users (Macintosh and Windows/PC).

Producing a cross platform multimedia program does present problems for authors. As of this writing, multimedia authoring software does not offer the option to create a program in one platform and save a version in another platform. Each program must be authored in its specific native format. Programs viewed on the Macintosh must be authored on the Macintosh and programs viewed on Windows/PCs must be authored on PCs.

This also creates a limitation on memory capacity. Currently, CD-ROM capacity stands at 650 megabytes. This limits each version (Macintosh and Windows/PC) of the program to 325 megabytes. Several trade-offs must be considered by multimedia authors...
when developing programs of great scope. These trade-offs and technical limitations, as well as design and production process, will be discussed further in this section.

**Technology**

One of the secondary benefits from this thesis project was a broader and more comprehensive understanding of computer hardware and software needed to author electronically delivered course material. Relatively speaking, hardware and software requirements are extremely RAM intensive. This project must be viewed as a snapshot in time. Perhaps a year from now, authoring these types of projects may not be as demanding as technology evolves.

Multimedia authoring software has a considerable learning curve. It is an extremely unforgiving technology. The basic functions are easy to grasp but do not give much functionality to your program. It is the advanced features (including scripting and lingo) that may pose a problem for the novice author. Programming errors that may arise are at times difficult to trace. Therefore, the testing of programs must be an ongoing process.

Currently, there are three commercially available multimedia authoring software programs. Macromedia's Director and Metropolis, and Quark's QuarkImmedia. These software packages were all carefully evaluated before project production. QuarkImmedia uses the same interface metaphor as the popular page-layout program QuarkXpress. However, their was not much history with the program and very few after-market learning companions. Metropolis was falling out of favor with the Macromedia company, spending most of their development energy into Director. Macromedia’s Director 6.0 was the authoring tool that I finally decided to employ. This was due to its history, technical support and availability of literature on learning the product.

Unfortunately, Macromedia’s Director has a huge shortcoming that must be realized and dealt with. The problem is that Director is a platform specific authoring tool. You must have a Macintosh version of the software to develop programs viewable on a Macintosh computer. Conversely, you must have a Windows/PC version of the software to develop programs viewable on a Windows/PC computer. This facilitates
having two versions of the software if it is your intent to develop a cross platform program. It also becomes necessary to be familiar with the operation of both computer platforms.

Images were scanned and converted to “pict” files using Adobe’s PhotoShop 4.0. One other technological point to note. Macintosh and Windows/PC computers use different color palettes. Colors may be reinterpreted when converting from one platform to the next. These colors may appear posterized or bitmapped. Color sensitive elements should be tested on an on going basis.

I recommend that the system I used for authoring be considered minimal hardware requirements. The specifications are as follows:
Power Macintosh 8600/250
64 megabytes of RAM
8x CD-ROM drive
Umax 1220S scanner (cross-platform)

Compaq Presario 1065 (Windows/PC)
32 megabytes of RAM
8x CD-ROM drive

**Script Development**
The objective of the script in this project was to present ideas and information relating to the areas of Art Deco, Streamlining and design in America from 1950 to 1970. Much of the script was based on two resources. The main source was derived from the required textbook for the course, The New Design Source Book (Sparke). Secondary sources were taken from Graphic Design, A Concise History (Hollis).

Each of the three modules of the program were edited to present salient points related to the Design History course curriculum outlined by Professor David Bull. Much of the language was revised because of several “British” language references throughout the text.
CD-ROM production can not begin until a comprehensive script and outlines are organized. Scripts were utilized in the narration sequences (discussed later) and also appear as the textual information on each screen node of the program. The scripts were broken down into "text morsels" that would fit within the size constraints of the computer screen. The overall script length was developed to be comparable to two weeks of lectures and reading assignments, normally presented in Design History course ID 253.

Original script development is a lengthy process that involves a tremendous amount of research. For future projects similar in nature, it may be advantageous to employ the services of a scriptwriter (or team of scriptwriters) who can write for visual and time-based motion media. This will aid the multimedia author in preparing sequences, sounds and navigation.

**Images**

Color, and black and white images were scanned using UMAX Astra 1200s color image scanner at 300dpi. Images were then modified using Adobe PhotoShop. Many images needed color correction, dust and scratch retouching, or silhouetting. Images were then sized for their incorporation for specific layouts and image resolution was reduced to 72dpi. It is necessary to reduce image sizes to 72dpi due to that fact that RGB computer monitors only transmit images at that particular dots per inch rate. Any file sizes larger than that would be needless and indiscernible to the viewer. All images were saved and imported into Macromedia Director as "pict" files.

**Screen Layout**

Each screen layout was based on an underlying grid structure that provided order and clarity to the functional, structural and informational elements of the program. This grid also provided guidelines for the position of visual elements and a framework for all textual elements.

In some cases, the same conventions we rely on in print media were employed in the program's layout. Textual information appeared on the left of the screen in an effort
to mimic our intuitive sense of reading left to right. Module headings appeared in the upper left in a semi-bold serif-face, with section subheads called out in the upper-right.

Navigational elements were placed at the bottom of the screen as to not interfere with the content related visuals and text. It was my intent to have the user concentrate more on the content and less on how to navigate through it. Volume controls, audio replay, a back button, return to menu, and exit program (quit) commands were presented clearly and consistently. An arrow button in the lower left allowed the user to advance in a linear fashion to the next screen. This button was called out from the rest of the navigational elements because of its high level of usage. The use of rollover effects for these elements was minimized. In the pre-testing phase of the project, many users thought the use of rollovers created distractions to the overall content of the program. Generally, once a rollover effect was discovered, after several uses, it became boring and less effective.

The entire multimedia program contained 157 screens (nodes), each with corresponding narrative audio. Over 350 images were used to thoroughly present the content of each period discussed. Modules break down as follows:

*Art Deco*
- 102 images
- 1 menu
- 52 nodes
- 52 edited sound bits

*Streamlining*
- 128 images
- 1 menu
- 52 nodes
- 52 edited sound bits

*American 1950–1970*
- 116 images
- 1 menu
- 50 nodes
- 50 edited sound bits
Figure 1 shows a typical screen layout and grid structure used throughout the program.
Navigation Options/Menu

The primary form of interaction in this particular project is navigation. It was important to develop a system that would allow users to understand where they were, where they could go, and how to get to a certain point. Several design objectives were outlined and applied in the program. First, short simple paths between any two points were mapped. Secondly, redundancy of multiple paths via hypertext links was avoided. The features of usability, flexibility and consistency were important.

Module headings always appeared in the upper-left portion of the screen. In the event that a user navigated to another module via a hypertext link, they were always provided with a visual cue on where they were. Module subheadings were also used to identify the appropriate section (or chapter) of each main module. These subheadings appear on the upper right of the screen and correspond back to the menu of each section. These menus also serve as a progress indicator if desired by the user. The screen layout was designed to provide the user with a consistent orientation within the program.

The navigational elements were presented in a simply, easy to use manner. It was my intent to avoid having users expend a large amount of time "learning" to use the product. Consistency builds confidence in the user. Once users trust that certain options will always be available, they will feel free to explore further (Lopuck, 1996). The navigation was structured to be simple and unobtrusive to the content of the program. Additionally, its navigational purpose was to allow users to navigate to sections of the program in as few steps (clicks) as possible and minimize navigational decisions. These navigational elements appear at the lower portion of the screen in a consistent location throughout the program. These navigational elements shown in figure 2 function as follows:

a) Arrow Button
Allows the user to navigate to the next node in a linear manner.

b) Vol 0/1/2
Allows the user to control the volume of the audio. This is necessary due to the fact that once in the program, the user is unable to control other functions on their computer. In other words, once in a "projected movie" users do not have the ability to multi-task. Volumes were preset at mute (0), medium (1) and high (2) levels.
c) **Replay**  
Allows the user to replay the audio portion (and animations) of the currently viewed node.

d) **Back**  
Allows the user to return to the previously viewed node.

e) **Menu**  
Allows the user to navigate to the menu of the module they are viewing. A link to the main-menu was provided in each of the submenus (or section modules).

f) **Quit**  
Allows the user to exit the program.

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**Hypertext links (within text)**  
A multilinear navigational element that would connect a user to an associated section relating the key word selected. This is discussed further in the sub-section “Hypertext multi-linear navigation.”

**Audio/Narration**  
Certainly one of the unique features of multimedia is the ability to incorporate sound. Music, narration, and sound effects that deliver content, reinforce action, and contribute to overall style (Kristof, 1995). Additionally, sound can add another contextual element that can not always be achieved with print media.

Although small musical scores were used in the program, the primary use of sound was utilized to narrate text. Voice narration sessions were recorded using University Technology Services located in Lord Hall. These sessions were recorded with
an engineer onto multi track digital audio tape (DAT). The DAT was then transferred into an AVID (Macintosh based) non linear editing system where the audio clips were organized and exported to AIFF audio format.

Each audio portion was edited using Macromedia's Sound Edit 16 (Sound Forge for Windows/PC). Each sound clip was edited to lessen lip smacks, pops, and inhaled breaths. Each sound clip existed as an edited stand-alone file, corresponding to each screen text in the program. This amounted to a total of approximately 150 edited sound bits.

When developing a program such as this, important compromises must be made. The first of these compromises is audio sound quality versus RAM (random access memory) and hard disk resources. Secondly, the memory capacity of a recordable CD-ROM (650mg) must be considered. Computer-processing speed will also have an effect on audio playback relative to audio quality. All these things must be carefully considered to facilitate an efficient production process.

Sound resolutions of 16-bit stereo at a 44.1kHz sampling rate is optimal in must digital media of this sort. However, this level of quality is extremely memory intensive. Although the original sound clips were recorded at this higher rate, because of the scale of this particular program, the only prudent decision was to scale down the sound quality to 8-bit mono at a sampling rate of 22.05 kHz. This sound quality is comparable to the quality of a good AM radio. To provide an example, 1 minute of audio occupied about 1 megabit of memory space, whereas the higher rate would occupy 4 megabits of memory.

The two different voices were utilized in the program. Narrators alternated between each new sub-section of the program. This strategy was used as a mechanism to alert the user that the program has moved into a new section. One of the shortcomings of a visual grid system employed such as this one is that the subheadings become predictable and sometimes overlooked. The change stimulus of the voices served as another cognitive cue that a new section of information was underway.

Each recorded sound clip had to be read by the voice talent with no errors. It is too problematic to try to edit or splice in audio within a recorded segment. It is a very
difficult task not only for the engineer, but also for the voice talent. Both have to be cognizant of previously recorded pitch, tempo, voice inflection, and pace. Therefore, it is best to have each narrative section recorded as individual sound clips, unedited, with no mistakes. This indeed put tremendous demands and responsibility on the voice talent.

Voice talent should be carefully considered in a production of this sort. Although we found that using two narrators was effective in this case, there was a small percentage that decided to mute the voice and read the text on screen. There may be underlying social factors in voice recordings that become distractions to some users such as geographical accents, gender credibility, or familiarity (Reeves and Nass). This is an area that deserves further research and analysis.

**Hypertext Multi-linear Navigation**

Since there is so much overlap in the content of this program (and other historical areas of study), hypertext links were used to show and connect relationships. The hypertext links used in this program follow the same convention as a webpage on the internet. Hypertext links are delineated in blue rather than black as for the rest of the body copy. These links allowed the students to navigate in any direction they chose. These linkages create an associative network of information. Each connection of these nodes becomes analogous to associative language.

The new medium of hypertext offers new opportunities to present educational narratives. Hypertext challenges the structure of traditional linear narrative.

The structure of this program follows a linear chronological progression. It is hierarchical in nature in the sense that the first node begins with an introduction and ends with a conclusion.

The user is empowered with one of two options to navigate through the program. The user can move “forward” in a linear narrative fashion by selecting the arrow in the lower left part of the screen or be linked to another node by selecting a hypertext link. This type of structure and narrative is clearly the most effective delivery using electronic media.
Nodes are linked via key words within the text. Like conversation, you go from subject to subject, creating a web of interconnected ideas. These links give the text an interactive quality that engages the user. The user is forced to consider what has been read, and choose which route to take. Similar to conversation, information and ideas are not always sequential. Although this program provides the user the opportunity to move through the narrative in a linear fashion, eventually curiosity entices the user to choose hypertext navigation option. Once selected, key relationships gradually unfold, as the program takes on an exploratory quality. The unique linking structure moves the user into interrelated places and ideals.

My initial assumption of employing hypertext into this program was that it would give more control to the user. The process of considering and choosing links is interactive and engaging. However, after further analysis, I believe that hypertext links gives as much if not more control to the author (if that is their intent). Each link must be carefully predetermined and mapped. The author has the ability to steer the course to the next node. Printed material however, allows the reader to decide what chapter to read next, what article to choose, what book to pull off a shelf, and in what order to do so.

Because this media requires the interaction of a user, casual decisions cannot be made. Therefore, the engagement of multimedia cannot be treated as a passive activity. The user must take on an equal amount of responsibility if the program is to be successful.

This particular program (and other multimedia limited to a computer screen) does not allow the user to browse through large areas of text. The structure of multimedia within a computer screen creates a framework that is somewhat inferior to print. This “framing” on all four sides eliminates the opportunity to scan text as is possible in print media such as newspapers and magazines. This form of media must not be compared to print in this regard. Users must approach the physical characteristics of multimedia differently.

The structure of hypertext nodes must be carefully crafted and conceived by the author. They should deliver a narrative that may exist as a single stand alone unit, while at the same time, indicating that there is more information to be discovered. The reader should feel they can conclude their reading at any time, or that there is more information
to explore. If this is not accomplished, the reader is left with feelings of confusion and incompleteness.

Multimedia extends to include graphics, illustrations, diagrams and sound. Hypermedia (creating links on actual images) can link these visual elements to the textual content in a more comprehensive fashion. The hypermedia environment can begin to involve more of our sensory perceptions such as sound, time and motion.

The multilinear, multisequential nature of this program can be compared to that of associative conversation. The interconnected ideas can be followed in-depth through hypertext links. Current technology even allows for linking information from a CD-ROM directly to a webpage. Hypertext links can allow the user to choose the areas they wish to further explore on a more extensive (and possibly infinite) level. The user can then navigate to related material in an orderly, non-sequential fashion.

The example (figure 3) on the following page will show several navigational options contained in the program.

Unlike linear storyboarding as in the case of film and video production, multimedia must be mapped in a web-like (multilinear) configuration. It is important for the user to always have a frame of reference on where they are in a particular program. Much anxiety is created when a user can not find where they are or get to where they want to go. Visual or audible cues must be provided for the user if a program of this nature is to be successful.
CD Recording

The process of recording data to a CD-ROM presents some unique technical challenges. It was my goal from the outset to produce a hybrid CD-ROM program, that is to say, the program would contain both a Macintosh and Windows/PC version. This was accomplished in the following manner.

The program was recorded using “Toast CD-ROM Pro 3” software on an Olympus CdwriteR 2x recorder. Although there are faster commercially available data recorders, this is the only one I had easy, consistent access to. The program was recorded in the “hybrid” format, which combines both Macintosh and Windows/PC formats onto a single disc. This was a critical necessity if the program were to indeed simulate a distance learning environment. An additional advantage of recording in this format is that Macintosh data is only visible to Macintosh users, and Windows/PC data is only visible to Windows/PC users.

The data must be prepared by first creating separate, temporary partitions for each platform. This is like creating a second hard drive on your computer. Macintosh data is then copied onto the temporary partition and the Windows/PC is stored on the computer hard drive in its native Windows/PC format.

The difficulty lies not with software but with hardware. Each partition needs to have at least three times the program's file size of contiguous free space. Another way of putting it is, for a 300 megabyte file, it must reside in a 900 megabyte hard drive (or partition). Because of the file size of the program (320 megabytes each) it required almost 2 gigabytes of free space on the computer hard drive. It became necessary to remove all programs and data from my computer to accommodate for the space needed for hybrid CD recording.

Once this task was completed, I proceeded to record 60 hybrid programs which contained 640 megabytes of data. This file size pushes the limits of current CD-ROM capacity which today stands at 650 megabits. The record time for each CD including data verification was approximately 40 minutes. This translated into 40 hours of record time.
After the completion of the recordings, I randomly tested approximately twenty (20) CD-ROMs on several different systems and on both computer platforms. As stated earlier, only two of the 55 programs distributed experienced technical problems. One was diagnosed as a system problem on the end users side, the other was noted as a problem with the Windows/PC partition on the CD-ROM.

Each program was given a serial number for tracking and distributed to students in a jewel case that contained individual instructions for each platform.

A sufficient amount of time and computer resources must be given to this final production stage before distribution. I recommend testing on multiple platforms (particularly older systems) before product distribution. More importantly, programs should be tested on an on-going basis during program development and authoring.

CD Jewel Case

Jewel case covers were designed as a part of the program that incorporated the same visual language as the interactive program’s opening module and menus. A grid structure was utilized for the typographic layout. Ten different photographic images relating to the program content were incorporated into ten different covers (figure 4). The idea behind this was to imply that each student was receiving a unique product designed specifically for him or her. This visual reference would also serve as a device for students to identify their program in the event that a CD-ROM was misplaced in a computer lab or office.

Instructions for both Macintosh and Windows/PC platforms were included on the inside sleeve of the jewel case, as well as an email address to direct inquiries.
Cost Considerations

Budgetary considerations will be an important factor in the development of future academic programs such as this one. Special attention should be given to the following areas:

- Development costs
- Delivery (distribution) costs
- Maintenance and/or revision expenses
- Set up expenses
- Management
- Copyrights and releases

An estimation of hours is one that should be carefully monitored for the purpose of professional practice. Billable hours will be of great concern for clients and consultants interested in developing programs of comparable scale. My best estimate on this particular project is somewhere in the range of 300 to 400 hours.
This estimate would include, but not be limited to the following tasks:

• CD-ROM design and production
• Scanning and photo manipulation
• Image research
• Script development and editing
• Proofreading
• Library research
• Music selection and editing
• Audio recording sessions
• Voice talent
• Testing

Legal Issues

Instructors utilize a wealth of different materials in the classroom, whether teaching in a face to face setting or through distance learning. Many of the materials that teachers use are protected by copyright, and thus copyright law can either clear the opportunity for the desired use, or it can set restrictions.

Both instructors and lawyers are trying to interpret copyright laws with respect to distance learning and interactive multimedia products. These laws are complex and difficult to decipher without the aid of experienced legal council. With respect to these laws, I deem this particular CD-ROM project to fall under the “Fair Usage Exception” and the nature of its intent is for nonprofit educational purposes. The statute (17 U.S.C. - 107) states the following:

The fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright.

Furthermore, all visual and textual references are duly credited in the bibliography that concludes this thesis document.
These laws however seem to be changing on a monthly basis. It would be prudent for multimedia authors to align themselves with legal counsel that can advise them on the appropriate and inappropriate use of copy-written material whether the application is for commercial or academic use.
IMPLEMENTATION

CD Introduction and Launch

Studies have shown that a person's motivational state at the time of exposure to new information will have a considerable influence on what is remembered. I felt it prudent to make this a directed learning experience in order to effectively measure the program's success. Directed learning occurs when learning is the primary objective during information processing, such as a student reading a textbook in preparation for an upcoming exam (Engel, 1995). Additionally, the fact that students were to be tested on the content of the program would also discourage incidental viewing on the student's part.

The program was implemented during the 7th week of the autumn quarter to all students enrolled in ID 253 Design History. A brief presentation was prepared and delivered discussing directions for use and the content of the program. Students were instructed to view the CD with a purpose. Each of the three sections in the program was given an overview and a list of "things to look for."

A brief demonstration was given on usage, navigation, and system configurations for Macintosh and Windows/PC platforms. Any technical questions that arose were to be directed to me via email. A study guide was also made available for those students who requested it via email.

A selected bibliography of visual and textual references was also distributed with the CD-ROM if students cared to do additional research on a particular topic.
It was suggested to students to navigate through the program in a linear fashion first, then non-linear (multilinear) fashion to understand connections, relationships and influences within the content.

The program’s sections were outlined as follows:

**Art Deco 1925-1939**

Please be prepared to discuss:

- The importance of the Paris Exhibition of 1925
- What influenced the Art Deco designers
- The social conditions in the period both domestically and abroad
- How the work of Le Corbusier differed from other Art Deco practitioners
- Fashion, furniture, and glasswares
- The work of AM Cassandre and who he influenced
- Significant buildings erected in the Art Deco period
- Why the cities of New York and Hollywood were important.

**Streamlining 1935-1955**

Please be prepared to discuss:

- The importance of the New York Worlds Fair of 1939
- The new arbiter of Good Design after 1939
- The terms stylist in contrast with designer
- What influenced the streamliners
- The development of products that effected peoples lives and lifestyle
- The distinct cultures of domestic living
- How the office environment was transformed
- New materials used in product design
- The changes that occurred after WWII
- The emergence of the Industrial Design profession.
- The work of Henry Dreyfuss, Raymond Loewy, and Norman Bel Geddes
- The work of Charles and Ray Eames
- Italy and the Olivetti company
- Germany and the Braun company
America 1950-1970

Please be prepared to discuss:

- The effects of WWII
- Technology and new product development (transistors and print technology)
- Mass culture and the teenager
- Domestic products
- The significance of furniture companies like Knoll, Herman Miller and Steelcase
- The work of Mies van der Rohe
- The terms “Corporate Identity” and “Art Director”
- The significance of George Nelson,
- The significance of Paul Rand and Bradbury Thompson
- The influence of print media (Harper’s, Esquire and Westvaco Inspirations)
- CBS and its significant figures
- The emergence of large commercial design organizations
  (i.e., Chermayeff and Geismar)

Other points that were stressed at the program’s launch was that the program was for use exclusively to students enrolled in ID 253 and under no circumstances should it be distributed or duplicated.

It was recommended that students view the program on Macintosh platform computers. However, because the program was authored as cross-platform product it was viewable on Windows/PC machines. Students were also informed that they would receive better results on machines with fast processors. I recommended the G3 computers in the design department lab in room 270. These machines allowed for the use of headphones and contain speedy CD-ROM drives and fast processors.

Students were given two weeks to work through the program. During this time they were not required to come to class. After this period, students were tested on the contents (these test results will be discussed later). Exam questions were taken directly from the contents of the study guide. This test was designed and followed the same format as the four previously administered quizzes. This test is shown in Appendix A (page148). At the completion of the test, all CD-ROMs were returned. Appendix B (page151) shows a list of student participants which also included corresponding CD-ROM serial numbers for tracking purposes.
CHAPTER 4

CD-ROM CONTENT

Opening and Interdisciplinary Modules
The opening module presents a time-based motion sequence of pulsating images situated in a nine (9) square grid on the left of the screen. A musical score accompanies this sequence, creating mood and rhythm. As the images randomly blink and dance, vertical-scrolling text to the right of the screen reveals the content of the program. After approximately 60 seconds, the user is presented a menu screen that allows the user to proceed to one of the three design history modules (Art Deco, Streamlining, or American Design 1950-1970). Rollover effects are used to indicate a link to these sections. Once clicked, the user proceeds to the selected design history module. Once in the selected design history module, the user is presented with a directory or index for that specific module. The user then has the option to navigate to any section of the module they may chose.
(figures 5-8)
Art Deco
This section discusses the period of Art Deco, spanning from approximately the years 1925 through 1939. This period came to symbolize a wide range of styles and applications that are reflected and discussed in this module. Contrasts are made between solemn theories of the Modernists, and the brash colors and dynamic geometric juxtapositions of the Art Deco designers. The exciting contemporary mood, expressing positive action, speed and style are discussed. Several visual references to nature and natural forces such as sunbursts, waterfalls, clouds, flora and fauna, abstracted into geometrical patterns are highlighted. The rich Art Deco mixture of exotic materials is pointed out through household wares and fashion accessories. Observations of architectural schemes found in Britain and the United States are discussed. (figures 9-62)
Art Deco 1925–1939

The term "Art Deco" is derived from the Exposition des Arts Décoratifs, an exhibition held in Paris in 1925 to celebrate the arrival of a new style in the applied arts and architecture. It is remarkable that this simple, abbreviated catch-phrase is used today to describe a wide range of innovations and presentations—from the pristine and brilliantly colored “jazz” patterns of the 1920s to the streamlined metallic movement of the 1930s. The sheer diversity of these and other interpretations reflects the myriad influences and fashion trends that ran their course in these decades.

figure 10

Art Deco 1925–1939

Like their predecessors of the Art Nouveau movement, Art Deco’s practitioners favored particular color schemes and formats which occurred in different countries throughout the period, creating cultural movements in taste. Brilliant reds, “anise” greens, “chocolate” blues, “fawn” yellows, “tango” oranges and metallic hues of gold, platinum, silver and tin were enjoyed worldwide. Their initial inspirations were Eugène Grasset, the Paris salons of fashion, and Paul Poiret’s celebrated couturier. These key colors transformed interior design and dominated decorative accessories—a striking point that independent designers and manufacturers dipped into enthusiastically.

figure 11

31
Art Deco 1925–1939

Introduction

Even under the Modernist banner of the 1920s with its emphasis on raw metallic tones, accents of bright colors were often provided to break up over a subdued background. The discovery of Tutankhamun’s tomb in 1922 gave rise to the craze for “antique” shades such as gold, peach and turquoise, employed in striking combinations for room settings and furnishings.

The vortex for Egyptian-style designs that permeated the 1920s was only one of several exotic influences to make its mark on a fashion-conscious public. Negro and "primitive" art and the American jazz culture were assimilated readily into the novel decorative vocabulary of Art Deco, as were Aztec and the Indian motifs.

figure 12

Art Deco 1925–1939

Introduction

Among this profusion of bizarre patterns and vibrant colors, used to decorate every available surface and space, the understated appeal of Le Corbusier and his followers had considerable impact at the 1925 Paris exhibition. His all-white pavilion, L’Esprit Nouveau, heralded a new Modernist aesthetic that contrasted starkly with the rich and ornate ornamentation of Art Deco. Yet even here, in the hands of Art Deco designers, simplicity was infused with elements of glamour and luxury.

figure 13
Art Deco 1925–1939

Introduction

The progression of the style, born in its highly decorative idiom in the 1920s to the more elegant "functionalism" of the 1930s is traced in the following sections. Highly elaborate and intricate pieces were created in France for luxury markets, while in Britain mass-produced articles gave an illusion of grandeur to those on more limited budgets. In the United States skyscraper architecture with its spectacular heights and facades Hollywood-style interiors exemplified the more extravagant facet of Art Deco.

figure 14

Art Deco 1925–1939

France

Paris in the twenties and thirties was caught in a whirlwind of artistic activity that produced an important art movement, which was taken up and exploited by advertisers in the world of fashion and interior design. In this exciting milieu, with its rich diversity of styles and temperaments, the Art Deco style emerged as the most important decorative force, epitomizing the spirit and imagination of the period.

Young Woman in Green
Tamara de Lempicka,
1927

figure 15
Art Deco 1925–1939 | France/Paintings, Posters, Fashion Plates

Art Deco stylization in treatment of line and color affected a wide range of decorative compositions on canvas and paper. Geometrically designed, angular and abstracted forms and a brilliant palette combined to capture the spirit and sophistication of period tactics, and such designs were employed by many French artists. Apart from the adoption of the stylistic motifs, several outstanding painters and illustrators specialized in the portrayal of contemporary subjects and scenes alluding to the lifestyle and aspirations of their patrons.

Voyages de Nuit, en Wagon-Lit
A. H. Cassandre, 1926

figure 16

Art Deco 1925–1939 | France/Paintings, Posters, Fashion Plates

Scents both real and imaginary were the themes of numerous works—borrowed from the world of the theatre and circus and imbued with the sultry nighttime atmosphere of casinos, saloon bars and bordellos. Unlike the German Expressionists of the period, however, who emphasized the more decadent aspects of real life in an erotic context, the artistic expression of the French painters was charged with vitality and grace — there was a celebration of life.

Les Reines de Paul Poiret
1908

figure 17
The Polish-born artist Tamara de Lempicka (1898-1980) was one of the best and most prolific painters of the period who strove to capture the divine personalities and patrons of Parisian society. From 1924-1929 she painted numerous portraits, most of them rendered in the Art Deco idiom of boldly defined angular forms, gleaming and polishedchrome effects and juxtaposed planes of patterning. The figures were invariably placed in "modern" settings, gauntly dramatic and filled with skyscrapers and sports cars. These contemporary settings gave tantalising glimpses of the influence and soul sophistication of their subjects. In "Autoportrait" an elegant female figure is seated at the wheel of a car, wrapped in a voluminous steel-grey coat, with a matching driving hat. The subject assumes a serene and confident air - a pose and the, as a fashion model and a symbol of the new "progressive" woman.

Figure 18

Tamara de Lempicka was awarded the Prix d'Honneur of the Brussels International Exhibitions of 1927, and in this city many other painters cultivated their own ideas of the Art Deco style. Jean Dupas (1882-1944) created highly decorative compositions in which, frequently symmetrical and stylised figures were posed artificially, like mannequins. In his portrait of "A Man with a Hat" (1926) the smiling subject becomes an interrupted form, echoing the shape of her tall and narrow hat, and epitomising the high-spirited and illusionary style of the period.

Figure 19

35
In Paris, artists such as Robert Delaunay (1885–1941) and Sonia Delaunay (1885–1979) created numerous paintings, graphic works, and stage designs in the Art Deco style. Kees van Dongen (1877–1968), who came to Paris from the Netherlands, produced a striking and original series of female portraits that expressed, in an exaggerated manner, the ideals and undercurrents of the period. The Japanese artist Tsuguharu Foujita (1886–1968) worked in the city from 1913, where he was commissioned to design decorative frescoes for the City University of Paris and the Ecole des Beaux Arts.

**Figure 20**

He is perhaps better known, however, for his graphic work, in which he made numerous etchings, lithographs, and posters of provocatively posed nudes in high-paint surroundings. In his poster "Bol de F.A.A.K.," a bottle again dressed in blue jeans beside a statue of a nude female. Her streaming strands of bright yellow hair and orange high-heeled shoes contrast vividly with her bare feet, creating an effect of playful abandon.

**Figure 21**
figure 22

In the commercial field, posters of artistic design were created in the spirit of Art Nouveau forebearers, the illustrated product and its complementary lettering being subjected to the unfolding rhythm of the composition. Images of Paris nightlife graced the covers of numerous posters advertising Le Foyer de Paris and other popular stage productions featuring Josephine Baker. Charles Gimenez (1886-1968) designed posters and costumes for the actresses Spinelli and Shopingot. The artist Zig also worked for the Casino de Paris, devising numerous illustrations in an ebullient style.

The character of Josephine Baker

figure 23

The Russian-born by the pseudonym Casanove (1891-1943) came to Paris in 1929, where he was commissioned to create an important series of cultural advertisement posters, including one for the newspaper Libération (1935), for the railways Nord Express (1932), and the ocean liner Normandie (1935). His direct approach, characterized by simplification forms and bold silhouettes, captured the period's taste for travel, speed and luxury.

NEW YORK
LE HAVRE ET SOUTHAMPTON
CÔTÉ TRANSATLANTIQUE

Debonnet
A. M. Casanove, 1932
Art Deco 1925–1939 | France/Paintings, Posters, Fashion Plates

Fashion journalists provided another creative outlet for French illustrators through magazines such as Vogue in which the luxurious world of the fashion-conscious public were stylishly expressed.

Interior designs and furnishings of the period were under the influence of two distinct styles: the first emerged during the early 1920's and emphasized a number of exotic and oriental forms, inspired originally by the Russian set designs and costumes of the Ballet Russe, which had performed in Paris since 1909. The second appeared after 1930 and reflected the modernist approach of Le Corbusier and his followers. Both trends introduced new forms and materials, and subordinated to their own unique sets of aesthetic values.

Museums shaggy column
Clément Ressouche

* Vol 0/1/2  * Replay  * Book  * Menu  * Quit

figure 24

Art Deco 1925–1939 | France/Interiors and Furnishings

The so-called "Deco style", with its emphasis on rich and luxurious materials, sumptuous furniture and intimate surroundings, was cultivated by an exclusive set of designers for a wealthy clientele. The fashion for essential modernity led to the creation of many handsomely decorated interiors, highlighted by contrasting multipatterned fabrics in bright colors, twisted silk cushions and deeply upholstered day beds and ottomans. Chairs and sofas were rendered in wood forms and appeared low on the ground, and beechwood furniture was made elegantly accessible with an overall emphasis on comfort.

Armoiries de musee shaggy
Emile-Jacques Ruhlmann

* Vol 0/2/2  * Replay  * Book  * Menu  * Quit

figure 25
Art Deco 1925–1939 | France/Interiors and Furnishings

A new and complementary reign of exotic materials was employed—for those who could afford it—including woods such as mahogany, olive, bird’s eye, teak, tamarind, ebony, and rosewood ebony, which featured decorative grain effects and beautiful colors. Surfaces were frequently treated and lined with ivory or mother-of-pearl, decorated with floral bouquets, swirls and simple geometric motifs. Flashy gilded metal also called for the green-dyed shibukaw, known as shagreen, to adorn the panels of furniture and accessories, and lacquer was employed in great effect.

Armschair with Sun Ray motif
French design

• Vol 0/1/2 • Replasy • Back • Menu • Quit

figure 26

Art Deco 1925–1939 | France/Interiors and Furnishings

One of the most accomplished and fashionable designers of the period was Émile-Jacques Ruhlmann (1879–1933), who created many spectacular pieces in the 1920s. In the construction of his cabinets, dining and bedside tables, chairs, desks and day beds, traditional forms were emphasized throughout by superb surface finishes and rich detail. He made common use of rose by both decorative inlays and functional nomenclature such as handles, feet and stretchers, and sometimes added bronze and silvered plaques to enhance these monumental objects. As well as the woods mentioned above, Ruhlmann favored the spalting patterns of ibicxinhol for his veneers, which he sometimes combined with the linear configurations of mosaic ebony, or other woods of contrasting hand markings.

Bedroom interior with furniture of massarum ebony
Emile-Jacques Ruhlmann

Mirror
Emile-Jacques Ruhlmann

• Vol 0/1/2 • Replasy • Back • Menu • Quit

figure 27

39
His overall adherence to the refined tastes of the eighteenth century notwithstanding, a number of Art Deco design elements were incorporated into his work. Cabinets were sometimes rendered in geometric forms of simple, block-like structure; the legs of tables tapered dramatically into thin points, or merged into a massive central support; and legs and divans were leaned against the floor.

figure 28

The company of Étienne Martz was founded in 1919 by Louis Sue (1879-1945) and André-Henri (1887-1912), to design furniture and interiors. Their thrones, which reflected the extravagant tastes of the 1920s, realized in the Art Deco style. The work of the craftsmen Jules Leleu (1908-1963) also contributed to the highly decorative, artistic manifestations of Art Deco. The Atelier Martz, established in 1911 by Paul Pilet, produced at his time artistic inspired interiors and modernist furniture. Other outstanding period designers included André Grunau (1904-1967), who dealt in modernist room schemes and furnishings of great delicacy in a rich mixture of materials; the illustrator René Lalique (1860-1945), who made furniture of superb quality, creating novel forms using mosaics, glass and stone.

figure 29
Effeminate forms, whose erotic panelled furniture featured a startling array of surface motifs and complex patterns, Jean Dunand (1877-1942), best known for his intricate lacquer work; and Pierre Lagrand (1889-1929), whose erotic creations of lacquer, bronze, chinoiserie and zebra skin were derived from a diverse range of sources including the arts of Japan and India.

Two-fold lacquer screen
Paul Follot, 1910

Art Deco 1925–1939 | France/Interiors and Furnishings

The Irish-burn designer Eileen Gray (1878–1976) combined the enthusiasm of early Art Deco with the modernist trends of the 1930s. Her interiors, such as those created in Paris for Suzanne Talbot in 1929, possess a luxurious contemporaneity appeal highlighted by silvered glass floor tiles and screens and simple lacquered furniture. Eileen Gray's designs, elegant and timeless, are as striking today as they were more than 50 years ago.

Tubular armchair
Eileen Gray, 1929

figure 30

figure 31
Art Deco 1925–1939 | Lacquer

The oriental technique of lacquering was revived in Paris during the 1920s and became an important artistic medium for leading Art Deco designers and decorators. Interior furnishings such as parquetry, doors, screens, furniture and a range of small accessories were adorned with sleek coats of shiny lacquer, predominantly in shades of black, brown, red and gold. Surfaces were decorated manually with painted or carved scenes, sometimes highlighted with fragments of eggshell on smooth or granular textured grounds.

Jean Dasson (1877–1942) was one of the most accomplished and successful lacquerers of the period. His workshop received numerous commissions to decorate interiors, furniture (for craftsmen such as Lagrange and Ruhlman) and other furnishings, such as those destined for the luxury ocean liners Atlantique and Normandie. His lacquered wood panels demonstrate a technical virtuosity in their blend of rich color and exquisite detail, capturing the elegance and sensibility of Art Deco at its best. Dasson’s subjects were mainly figures – stylized females drawn from ancient Egypt and Japan – and fantasy depictions.

figure 32

figure 33
Art Deco 1925–1939

Lacquer

He also created abstract compositions, where each plane of patterning introduced a new and complementary color and texture to the surface. The scratched eggshell technique, in which minute pieces of shell were set into a mixture of transparent lacquer, was his own invention, and he used it to great effect for areas of contrast and shading.

Eileen Grey studied lacquer work in London and later in Paris under the great Japanese lacquer artist of the time, Sosuke. In 1922 she opened the shop Juan Desiré, in which her furniture and lacquerwork were displayed and sold to an exclusive clientele.

Cigarette Box
Jean Goultet, 1927

figure 34

Art Deco 1925–1939

Glass

Like Art Nouveau style before it, Art Deco designs had themselves a familiarity to the decorative surface effects of glass, and a diverse range of utilitarian and luxury objects and jewellery were produced throughout the twenties and thirties. French glassworkers at the period utilized controlled success in the application of novel techniques to create highly imaginative works.

Selection of scent bottles
René Lalique, 1920s

figure 35
Art Deco 1925–1939

Glass

René Lalique (1860–1945) manufactured an outstanding collection of molded damascene wares, including scent bottles for the perfumer Fragonard Coty, carvings, vases, lampshades and light fittings, clock-cases, desk accessories and decorative panels. His mass-produced pieces appeared in brilliant colors such as emerald green and pearlescent blue or in plain and frosted glass. Most were adorned with repetitive relief designs of animals, fork, female figures, "sinners," and floral and plant motifs. Often, the rich Art Deco ornamentation was permitted to intrude upon the structure of the objects themselves— for example, bottle stoppers and handles were transformed from purely functional appendages into pronounced features of striking decoration.

Lamp L'Oiseau de Fer
René Lalique

Moulded emerald pendant
René Lalique

figure 36

Art Deco 1925–1939

Glass

The pale-decorative pieces by Frédéric-Émile Stéphanhenne (1860–1933) and Aristide Muller (1860–1942) were sculptural in impact, and reflected many of the trends of the period. Their heavy and opaque wares, of crushed glass-paste composition, were moulded into fanciful forms. Vases were adorned with relief patterns of female figures, masks and geometric motifs, while other pieces were rendered as miniature sculptures depicting animals, fish, and rectilinear forms.

figure 37
Art Deco 1925–1939 | Glass

The continued and successful collaboration of the Debet brothers gave rise at this time in the production of cold-cut wares of free Art Deco design. Their luxury lamps and vases introduced new subtle surface effects, rendered in a bold geometric style.

Characteristically, the lasing and penetrating lines of the decoration were in contrast to the smoothly polished surface—a striking interplay of textures that recalled the works of many contemporary sculptors.

Yeast decorated in Egyptian motif
Gabriel Argy-Rousseau

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Art Deco 1925–1939 | Glass

Maurice Marinot (1882–1938) also moved after a range of novel surface treatments, creating a series of thickly wall-painted bottles, globes and other vessels that were highlighted internally by patterns of trapped air bubbles. André Thiroux’s glass of the 1930s had a similar abstract decorative content, with sparkling cells of clear and colored glass penetrating the surface. Henri Édouard Hébrard (1888–1940) shared Thiroux’s interest in the unique qualities of the medium and explored a variety of “natural” effects which, at the central aesthetic here, he allowed at times to merge halluxedly.

Glass jar made in Ives
Maurice Marinot, 1930

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figure 38

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figure 39
Art Deco 1925–1939

The USA

If Paris is the 'city of love' and Rio was the international center of avant-garde art and fashion, then New York was equally important for its blend of creativity and sophistication in literature and the performing arts. An ever-changing metropolis, the city from about 1925, comprising wealthy patrons and celebrities, poets, producers, and artists and their audiences from Hollywood and Broadway. This art was inspired by the group of writers known as the "Algonquin," named after the group's favorite meeting place, the Algonquin Hotel. The fast-moving pace of New York was described in the novels of Scott Fitzgerald, Ernest Hemingway, Robert Benchley, and Dorothy Parker, and in the lyrics of Cole Porter, whose "Anything Goes" summed up the decade.

figure 40

Art Deco 1925–1939

The USA

Art Deco's glamour and fantasy were the chief features of the period, evident in the films of Fred Astaire and Ginger Rogers, the Marx Brothers, Huret and Hemingway, and in the extravagant musical productions of Broadway and Radio City Music Hall. The style found expression through the decorative vocabulary of Art Deco, its patterns of zigzags, hard-edged geometric forms and dramatically stylized figures being perfect metaphors for the healthy, secular pace of city life. Erotic themes were also embraced (as they were, concurrently, in Europe) and the craze for Egyptian and Aztec design penetrated both architecture and the decorative arts.

figure 41

46
Art Deco 1925–1939 | The USA

Such inspiration could be noted, for example, in Giovanni's Egyptian Theatre on Hollywood Boulevard, with its broken columns, and in the pyramidal structures of skyscrapers such as the Empire State Building and Paul Frankl's modern furniture. Jewelry in the Egyptian style and accessories such as scent bottles modeled in the form of "antique" temple were mass-produced for a fashion-conscious market.

Empire State Building.

figure 42

Art Deco 1925–1939 | New York Architecture and Interiors

"From the chaotic situation springing out of an era of prosperity without precedent for decoration...a style emerged...Gennert's system consisted almost entirely of a few motifs such as the zigzag, the triangle, spotlike forms and designs." These observations, expressed in 1918 by Donald Deskey, the interior designer of Radio City Music Hall, garnished the new, geometric style of decoration that was to dominate American architecture at the beginning of the 1930s. In a flurry of activity, cities such as New York were transformed by spectacular Art Deco skyscrapers; the comprehensively furnished interiors of which emphasized the dramatic aspects of the style. Radio City Music Hall and the Chrysler building were among the first to be erected under the banner of "Modernism," and stood in dazzling contrast to the drab and outdated structures beneath them.

High steel works with Chrysler building in the background.

figure 43
If America was not represented in the Paris Exhibition of 1925 for the very reason that it had "no decorative art," as explained by a contemporary critic, the country made up for its omission by quickly establishing an artistic industry. It was making significant contributions to architecture and interior design by the start of the new decade.

Elevator doors (Clock and Stars)
First National City Trust, 1921

figure 44

These two outstanding monuments of Art Deco inspiration, the Chrysler and Empire State Buildings, appeared on the New York skyline in 1930. The Chrysler building, with its circular piers rising to a height of 1,260 feet, was designed by William van Alen and became a compelling example of the new architecture. This structure—which one critic labelled, "a freak... a clunk"—was radiated throughout with elements of glamour. Its novel white metals facing gleamed and reflected light like platinum. The jaunty fan-like material of the pinnacle, and radiating patterns of overlapping curves and lines, played further on the theme of good sunshine.

Elevator doors in the Chrysler building

Top of the Chrysler Building
William van Alen, 1930

figure 45
Art Deco 1925–1939

The Empire State Building, designed by the firm of Shreve, Lamb and Harmon, was equally striking in its hierarchical structure of towering rectangular blocks, reminiscent of a vast pyramid. Its uncluttered structure was in keeping with the simple geometric forms of the period. By virtue of its breathtaking heights, however, the building encapsulated the earlier Art Deco preoccupation with avarice and excess. Indeed, it remained resolute in the Expressionist ideals of the 1920s and 1930s, even as it so often referred to as "the Empty State Building."

figure 46

Art Deco 1925–1939

Another triumph of Art Deco architecture was the building erected at SEB Lexington Avenue, New York, designed in 1931 by the firm of Shreve and Lamb for the RCA Corporation. The facade was decorated with setbacks, cherubs and sun motifs (a recurring Art Deco ornamentation), blessed by a precision network of interrelated shapes and patterns. Such buildings were described by one contemporary writer as cathedrals of consumerism rising into the sky, and indeed they bore a striking resemblance to their Gothic predecessors as symbols of affluence, power and optimism.

figure 47
Art Deco 1925–1939 | New York Architecture and Interiors

Decorative fingers and wall plinths in the Art Deco style were added frequently to the facades of buildings, such as the ones created for the second RCA building at Rockefeller Plaza. Mosaic and Walpole patterns were combined on the exterior with stone carvings in low relief by the sculptors Lee Lawrie. Mythological figures emerging out of rippling clouds were portrayed as emblems of the RCA Corporation.

figure 48

Art Deco 1925–1939 | New York Architecture and Interiors

Radio City Music Hall opened its doors to the public in 1932, featuring the famous dancing troupe the "Rockettes." The interior of the building was offered with highly colored plaques of metal and enamel, designed by Mildred Rivers. These circular decorative plaques depicted in an erotic style the various aspects of entertainment, including Drama, Song, and Dance. The architectural style of the building, set in a contemporary public release, was "to achieve a complete decorative scheme that is an example of studio modern design."

figure 49
Art Deco 1925–1939

New York Architecture and Interiors

Such goods were more than fulfilled under the artistic direction of Donald Deskey, who was responsible for the interiors, furnishings and accessories. Deskey was assisted by some of the best furniture craftsmen of the period, and as an advocate of the new, Art Moderne he selected a range of novel materials such as bakelite, Hormex, mirror-glass, aluminum, chrome, cork, leathers and textile chintzes.

In spite of the Wall Street crash of 1929 and the ensuing years of the Depression, the architecture of New York enjoyed a period of renewal under the influence of Art Deco. The Empire State building represented the new wave of luxury Modernism, and its grandeur drew attention away from its simple interior.

figure 50

Art Deco 1925–1939

Great Britain

Throughout the 1920s, British interior design was closely related to the tradition of the past and demonstrated an affinity with the unique style of the twentieth century. The British designers of the 1920s had a taste for Art Deco, and the British market seized the opportunity to sell Art Deco furniture. The British market was more receptive to Art Deco design, and it was especially popular in the 1920s. The preference for ornate and decorative furniture soon gave way to the Modernist designs of steel, chrome and leather. In settings rendered even more glamorous by the addition of richly mirror glass and metal railings.

Daily Express building
First Street, London
Ellis & Clarke, 1931

figure 51
Art Deco 1925–1939

Great Britain

Color schemes for interiors reflected two elements of taste—either the combination of brilliant colors or the use of modulated white and metallic tones to create an appearance of cool sophistication. On occasion, these approaches were combined imaginatively, as in Raymond Hood’s design of 1930 for the "Restile" house, Furnbridge, which was described in a contemporary account as having a "marooned ceiling of silver-ebroidered muslin and glass in a jade green color... A silver lamp with spangles from pendants of red glass lit from within; the small door has a surround of gold mirror, the walls are olive-leaf frosted green, the floor is of a black Restoration composition with a border of blue, and a line of gold mosaic.

figure 52

Art Deco 1925–1939

Great Britain

Apart from private commissions, some of the finest Art Deco interiors were created for hotels such as Claridge's in London, decorated in 1927-28 under the direction of Saul Stemberski. He employed numerous interior designers, among them Oswald F. Libbey, who transformed the ballroom and spacious lounge. The latter featured a striking geometric carpet in black and beige tones by Herbert Groth, large wall mirrors enameled with exotic plants and other ornaments to heighten the effects of space and grandeur, and ornate light fixtures of unusual form. The hotel’s suites were also refurbished on the symposium scale in the latest styles. The bathroom, for example, were fitted with chromo and mirror glass fixtures against colored tiles and walls of jaspe and peach, while marble floors and decorative ceiling lights on giant sconces supported a glittering motif enhanced further by walls of off-white and luxury.

figure 53
In the foyer of the Strand Palace Hotel in London, designed by Oliver Bernard in 1930, illuminated glass paneling was used throughout - on the ceiling, columns, doors and windows - to achieve a dazzling impact. Glitter was also the essence of utilitarian decorations for the Savoy Theatre, opened in 1925. In the foyer, for example, the ceiling was ornamented with a superstructure of undulating curves, and the radiator grilles were too-painted and placed in decorative niches, offset by large black axes and Egyptian-style figurines. The auditorium was equally splendid, with walls and panels of silver-gilt, mirrored in metallic shades of gold.

Art Deco 1925–1939

Great Britain

Odeon Cinemas
London, 1935

Dramatic interiors were created for the numerous Odeon cinemas scattered around London and its environs. The one at Lancaster Square, for example, was designed by Weeks and Weir in 1937 with leopardskin upholstery and ripple-patterned walls in sparkling gold. In the Richmond Odeon, a Savoy-inspired theatre was designed, with balconies transformed by black architectural settings and pavilions.

Art Deco 1925–1939

Great Britain

Figure 54

Figure 55
Art Deco 1925–1939  
Great Britain

Although London in the 1920s was filled with the spectacular architecture that characterized cities such as New York, it boasted several outstanding Art Deco buildings. The BBC building at Portland Place, for example, was described in a contemporary issue of Architectural Review as "a soaring for the Silverlands". The simple curving facade was ornamented with sculptures by Eric Gill and Vernon Will. Recessed corners were featured in the exterior of the House of Industry at Festivals, near London, built in 1932 by Pollitt, Gilbert and Partners. Here, an expansive Art Deco scheme was introduced through its streamlined structures, offset by superimposed curves and semicircular windows.

Heever building  
Pollitt, Gilbert and Partners, 1922

The white stone was relieved by red, black and blue glazed tiles and accents of bright green paint. The ambulatory entrance is of uncertain origin, and has proved an icon to historians such as Bucte Miller, who wondered whether it was "Boulet Butler's, Jolly or Egyptian?" Such a rich mixture, indeed, epitomised the period style.

Relief panel, Ariel Hearing Celestial Music  
BBC Building, London  
Ed. Gill, 1932

Saunders Department Store  
Interior panels  
1935

figure 56

Art Deco 1925–1939  
Great Britain

54
Art Deco 1925–1939 | Decorative Arts

During the late twenties and thirties a wide range of luxury and domestic wares was created in the Art Deco style in England. Fine silver was produced by firms such as Asprey's in London, and the manufacturer Shapland and Scott, and Hart's sold furniture in the latest designs. Most-produced articles for use in the home, or as fashionable accessories appeared in production, and included the most popular materials of the twenties, brass, tubular chrome fixtures supported chairs, sofas and tables, the latter combined frequently (and inexpensively) with mirror glass for a sparkling surface finish.

The firm of James Clark ltd specialised in furniture of this sort, using lined mirror glass and tiles in shades of white, pink, grey and shades blue. Chrome and glass were also employed for lamps and light fittings, and were made more decorative by the addition of bronze or porcelain figures.

![Figure 58](image)

Art Deco 1925–1939 | Decorative Arts

Art Deco dinner, coffee and tea services of pottery and porcelain were produced by all the leading firms - as epitomised by Spode's "Royal Belgian" range. Here, simple geometric motifs of curves and squares comprised the main ornamentation, colored glass, amethyst and silver - all highly coveted shades of the period. London department stores such as Harrods and Selfridges supplied home furnishings as well as clothing and accessories. Costume jewelry was readily adapted to the rich array of Art Deco patterns and appeared in a multitude of novel shapes. Brooches, necklaces, pendants, bracelets, silver and enamelled were all employed imaginatively for day and evening jewelry, and fashionable excess in the form of belt-brackets, clips, bracelets, haircombs, headbands and combs.

![Figure 59](image)
Art Deco 1925–1939 | Hollywood Style

Hollywood in the twenties and thirties
provided a vision of a world where
America and Europe with the opportunity to
escape the strict and mundane existence of
everyday life. Actors and actresses became
“stars” and role-models for aspiring classic
audiences, and dictated changing fashions of
beauty, style and behavior. Acts of plush
interiors were often impressively lavish and
spectacular, but captured the aspirations of
an increasingly materialistic public.

figure 60

Art Deco 1925–1939 | Hollywood Style

Films of romance, melodrama and comedy
were produced in their thousands, and toured
the newly built cinema which sprang up in
cities and towns everywhere. Studios like
dream palaces - a Hollywood style architecture
emulated at striking decorative facades and
lavish-designed interiors, in the iconic Art
Deco style. The chain of Odeon cinemas in
Britain, for example, were gloriously
connected with their mirrored foyers,
nobilizations and range Food effects. The
grand interior of the New Victoria cinema was
described in a contemporary account as “a
palace under the sea”with its scaling-shell
wall lights and illuminated ceilings. In
America, Grauman’s Chinese Theatre on
Hollywood Boulevard captured, with typical
Hollywood flair, images of the ancient
civilization - like a film of B. d Mille
architectures. The dream world of films was,
indeed, extended to the architecture and
theater design of the cinema.

figure 61

56
Art Deco 1925–1939

Conclusion

Solemn Modernist theories of pure, unadorned lines were not to win in the Art Deco design. For them, brush colors, dynamic geometric juxtapositions and shimmering reflective surfaces matched the exciting contemporary mood, expressing positive action, speed and style. Being life-affirmative, their work abounds with references to nature and natural forms—sunbursts, waterfalls, clouds, trees and forms, abstracted into geometrical patterns. An essence in total design, Art Deco mixes exotic materials—figured woods, lacquer, chinoiserie, bronze, tinted glass—with chrome and plastics, bringing drama to massive architectural schemes and a quirky charm to household wares and fashion accessories.

Diner, 1920

Poster: Metropolis
A film by Fritz Lang
Schule Neuramü, 1924

Figure 62
Streamlining

The period of Streamlining sets up in the years between the two World Wars. Although many American designers of this period were learned in Modernist theory, they nevertheless found bulbous aerodynamic bodyshells and flashy exaggeration an appropriate representation of their faith in the future. Conversely, European designers took a more sympathetic approach to human scale. This is reflected in the cool elegance of Scandinavian “modern” and the light sculptural forms of furniture and domestic wares. The work of notable designers such as Raymond Loewy and Henry Dreyfuss are presented.

(figures 63-115)
Streamlining 1935–1955

Introduction

By the mid-1930s the professional designer had begun to influence on many of the new products that affected the way the majority of people in the industrialized world lived and worked. It was no longer the prerogative of the rich to own objects that had been considered by an individual with a trained eye. Increasingly, "style-conscious" goods began to penetrate the mass market and to affect the lifestyles of vast numbers of people.

figure 64

Streamlining 1935–1955

There were many reasons for this dramatic change in scale both in the mass production of goods and in the size of the "design-conscious" sector of the market; they related to the economic, social and technological changes of that period. One important factor was the increase in the wealth of social groups that had never before had enough money to spend on anything more than the bare essentials; this in turn encouraged manufacturers to increase their output and to find new technological means of achieving this end. Primary among these was the exploitation of new materials, specifically the new metals (and their alloys) and plastics.

figure 65
Streamlining 1935–1955

Among the numerous mass-manufactured goods to reach a population was the automobile. Since the advent of Ford's famous dictum—"it doesn't matter what color a car is as long as it is black"—styling had become the norm in the American automobile industry, and from the twenties onwards, stylists employed by the big American corporations to create the "dream machines" so coveted by the mass market, the people's car, a triumph of "function" over styling, was also a product of this period, and the little European cars—which included, in Italy, Fiat's "Topolino"; in France, Citroën's "Deux Chevaux"; and in Germany the Volkswagen "Beetle"—quickly became familiar symbols of the era's environment in continental Europe. Gone by the late thirties when Europe was consumed, were the "slender", powerful cars of the early years of the decade.

figure 66

Streamlining 1935–1955

The new ideas about "streamlining" that had grown up in the USA as part of the country's search for an aerodynamic automobile were transformed in the thirties and fused into a number of small, intimate domestic machines, particularly those designed for the kitchen like food-mixers and fruit-slicers. The image of the popular home was still occupied by products with a more traditional background. The butcher's stand of the "streamlined modern" style characterized numerous small products: made of metal or plastic, but in sharp contrast much domestic furnishings were move to the homely, natural design ideas emerging from the Scandinavian countries (in particular Sweden and Denmark).

figure 67
Two distinct cultures emerged — that of the kitchen and the living-room, which were conveyed by two completely different design styles and attitudes about living in the mid-century. While the first was a futuristic, pre-technology style that looked back ever so slightly, the latter was steeped in traditional values and ideas about conduct. They shared, however, a commitment to the democratic ideal. Design was no longer the preserve of an exclusive few, but available to almost everybody who wanted it.

A 1950s interior

*Vol 0, 1/2  |  Price  |  Back  |  Menu  |  Quit

figure 68

Perhaps more than any other aspect of the mass environment — the office was in this period, completely revolutionized by the appearance of new machines. The streamlined typewriters, adding machines, cash registers and punch-keypunchers, combined with the new approach towards office organization, meant a completely new environment for the area of daily life. Greater and greater efficiency was striven through the use of more and more machines which increased intensive time and motion studies. Like the domestic arena, the office of the late 1950s bore little resemblance to its predecessor of a decade earlier.

Inventory Department
Desk by Steelcase

National Cash Register
Walker Darwin Sprague

*Vol 0, 1/2  |  Price  |  Back  |  Menu  |  Quit

figure 69
Streamlining 1935–1955

Introduction

After 1945, design became one of the important ways in which a number of countries, especially Western countries, sought to reassert their position within world trade. Largely because the US had used design as an important means of surviving the economic depression of the 1930s and making itself a world power to be reckoned with, countries like Britain, Germany, Finland and Japan suddenly became aware of the need for a complete and integrated design with industry and develop a national design style that could secure them a place in international trade. The early post-war years were characterized by a "call for style" in these countries which made huge efforts to move beyond the limitations of the traditional industrial arts into industrial design proper.

figure 70

Streamlining 1935–1955

Introduction

This new policy entailed putting less emphasis upon the "applied arts" and concentrating instead on the design of mass-produced methodological goods made from new materials. During this period, furniture, for example, moved to be a ''ready-made'' product and became lighter instead with experiments with steel rods and the new plastics.

figure 71
Streamlining 1935–1955

It was the New York World’s Fair of 1933, however, that showed the most potential of style for the first time. The exhibition was dominated both in its buildings and in the industrial products displayed in them, by American “Streamlining”. It was also the first world exhibition of which industrial design was seen in evidence as the decorative arts, a fact that represented a triumph for the American industrial design profession for the new technologies and materials, and for design as an aspect of mass marketing. The largest exhibitors were the automobile companies—General Motors, Ford and Chrysler—followed by other manufacturers, American corporations such as United Steel, Du Pont, Consumers Union and National Cash Register.

New York World’s Fair, 1933

figure 72

Streamlining 1935–1955

It was through the mass media, another way of expanding design influence in this period—nin which design styles became available to a large sector of the population. Newspapers, magazines and even television were used with great enthusiasm. Following the earlier Paris exhibition of 1925 which had introduced Art Deco to the world, the Paris 1937 show was another huge success and presented all the new design styles to its eager observers. One of the surprises of the 1937 show was the presence of Streamline, and there as a display style. It was an idea that was to appear again in British and British exhibitions after the war.

New York World’s Fair, 1933

figure 73
Streamlining 1935–1955

After World War II, the large-scale world exhibitions were not immediately revived and their role as disseminators of style was taken on instead by other smaller, specifically design-oriented shows such as the Milan Triennale. It was believed that the newly organized design shows showed their new products to the rest of the world, demonstrating that design had become part of their economic, social, and cultural realm.

New York World's Fair, 1933

figure 74

Streamlining 1935–1955

The age of the atom exploded upon world consciousness with the bombings of Hiroshima and Nagasaki. The shock wave continued to ripple through the design world throughout the 1950s. The molecular model, consisting of primary colored electron spheres or atomic orbitals—spheres, provided a familiar motif for furniture, light fittings, clock cases, jewelry, and objects of art. Other by-products of scientific imagery included fabrics and surface designs based on crystal and molecular structures as observed under the microscope, producing identified random patterns free from associations with earlier designs. The exciting effects produced by the atomic patterns were so keeping with this taste for opportunity and provided another source of inspiration.

figure 75
Streamlining 1935–1955

The influence of streamlining had not yet been exhausted as demonstrated by car design and the Train at the Festival of Britain but it was degenerating from a practical theme to aunnounced style. By 1950 a much finer, more sculptural range inspiration was beginning to produce cars with cutting seats, kidney-shaped hoods, avant ceramics and elegant moulded glasses.

Shakebaker Commander (boothure)
Raymond Loewy, 1950

figure 76

Streamlining 1935–1955

In the years between 1935 and 1955 the USA fell the way where design was concerned. This was due to the society's advanced attitude towards industrial and business organizations and to the presence of a wealthy mass market eager to consume its existing new products. The films that came out of Hollywood in those years were the new mass-produced goods which played the role of fantasy fulfillment for a population for whom the economic depression was a sustained reality.

figure 77
Streamlining 1935–1955 | The USA

At the turn of the century, the new domestic machines, Singer’s sewing machine, Hoover’s vacuum cleaner, Remington’s typewriter and successful others – were designed in the same way as all the other “appliance” products. They were simply named for their purposes with two-dimensional patterns in the prevailing fashionable style, whether Victorian classicism or the symmetrical curves of Art Nouveau. In the early years of their mass production these objects were considered to be woman’s goods and were therefore designed to please what were thought to be “women’s tastes”.

**figure 78**

Streamlining 1935–1955 | The USA

With the growing success in subsequent decades of the machine aesthetic and the reproduction of ornament in avant-garde ideas about style in the decorative arts, even machines themselves gradually began to drop their decorative disguises and to look much more like the pieces of art, stamped or painted metal, that they actually were, with only enough surface decoration to conceal ugly seams.

**figure 79**
Streamlining 1935–1955

The USA

This change occurred first in the USA as a part of a conscious search for a style for the age, focusing on the design language that came to be called "streamlining". This derived originally from wind-tunnel experiments, such as wind-tunnel testing for objects of transportation, but it had a number of other visual sources including Futurist painting, architecure, the streamlined forms of sailing ships, and the streamlined, engineered forms of object like guns, ships, bridges and factory machinery (particularly as portrayed in photographs by people such as Margaret Bourke-White). To these sources were added the futuristic shapes and "speed whiskers" used by comic book artists.

figure 80

Streamlining 1935–1955

The USA

These influences all combined to form a particularly American aesthetic characterized by smooth "stream-line" body-shells for mechanical and electrical products and expressive organic forms for decorative art objects. It was a style that dramatically symbolized the present and the future and took advantage of the new technologies available for cheap mass production. It was applied to a wide range of objects from automobiles to electric irons, regardless of their potential for high-speed consumption or lack of it.

figure 81
Streamlining 1935–1955

Where the decorative arts were concerned, even the ceramic and aluminum objects of a designer such as Donald Deskey (5, 1935) exhibited the same familiar streamlined curves. Only furniture escaped from its impact and even in that category there were notable exceptions like Russel Wright’s “Airline” chair, which translated the smooth curves of streamlined into a chair form, and the furniture designs of Panton’s Aluminum Table, which displayed the same biomorphic shapes that were found in the sculpture of artists like Hans Arp and Jean Hélio.

![Image of Airline Chair by Russel Wright, 1934]

Figure 82

Streamlining 1935–1955

The major organizational breakthrough in the USA in the 1930s was the creation of an independent industrial design profession which set itself up to work on a freelance basis with the large manufacturing companies. The pioneer consultants, among them Russel Wright, Raymond Loewy, Norman Bel Geddes, Henry Dreyfuss and Harold Von Doren, all came from backgrounds in the commercial arts, advertising, shop window display, theatre design or a couple of cases. They were, therefore, intensely aware of the intimate relationship between design and sales.

![Image of Dreyfuss and Loewy]

Figure 83
Streamlining 1935–1955

The first companies to approach them were Kodak, the Silex Company, and the Seaboard Air Line Company. They were well known to market their goods in sales, and were usually willing to pay huge sums of money to achieve this desired end. The new machines were an emerging mass-produced, strikingly and generally more selective product.

[Diagram of a camera with the caption: "Polaroid camera providing instant development, 1948."]

figure 84

Streamlining 1935–1955

This group of industrial designers focused its efforts on streamlining and produced some of its best designs for objects of transportation (notably Laverne's "Raymobile" and his trains for the Pennsylvania Railroad company). These "streamline" automobile and railroad ("streamlined") locomotives. Other such as the "streamlined" locomotives concentrated on smaller products from the more traditional applied arts sector. They were, however, totally traditional in their use of materials and their approach towards design.

[Diagram of a locomotive with the caption: "Locomotives by Henry Dreyfus."]

figure 85

69
Streamlining 1935–1955

Most of the consultant worked across a vast range of consumer goods and few confined their creativity to the use of a single medium. Because they were in new profession and therefore had no links with the past, and because they saw the US entering a new “design conscious” age, the style they presented was completely modern in inspiration and impact. They took the European Modern movement as their theoretical starting point and quoted Le Corbusier or brought in various modernists. Tugend (1949–1949), the most elegant of them, returned, like Le Corbusier before him, to the importance of "classical" ideals in modern design and illustrated Greek temples to make his point. Their real emotional constituent was, however, to the contemporary world of speed and modern technology.

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Streamlining 1935–1955

The Consultant Designers

H. W. Busk, Horace, 1953

Porcelain dinnerware, Russel Wright

Illuminations by Charles Eames

Avanti/Lawrence Auto

Raymond Loewy, 1940
**Screenlining 1935–1955**

The American counterpart designers were obsessed with the aesthetic potential of a whole range of new materials. From aluminium to a startling range of new types of glass (from "Vitrolite" to "Glas Biloxi") and to plastics which were still, in the thirties, in a fairly early stage of their development. Henry Dreyfuss, for instance, used a Bakelite body for his re-styled Guerrieri machine, the body of which covered the exposed voltmeter mechanism of the earlier model. Dreyfuss designed an early telephone in celluloid statite, which came in a range of bright colors. This provided one of the first visual models for the telephone set that has become familiar in the modern environment.

*Guerrieri duplicator*
Redesigned by Raymond Loewy

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**New Materials**

**Bell Telephone, 500 series**
Henry Dreyfuss, 1956

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**Screenlining 1935–1955**

The furniture designers were more interested in finding new ways of stopping, bending and moulding wood than in using new materials of this stage. Inspired by the progress made in Europe by men like the Finnish-Alto (1900–1976), the Americans took their ideas a stage further. By the mid-fifties architects Charles Eames (1907–78) had produced, with the help of the Fibreform (1940), plywood chairs that had three-dimensional as well as two-dimensional curves in them. They were shown at the Museum of Modern Art in New York in the exhibition Organic Design in Home Furnishings (1940) which, six years later, by Charles James' omnium show of the same name, this time he exhibited a range of chairs combining moulded plywood seats with steel-red legs. In this organically curved seats were juxtaposed sharply by their fine, upturned legs.

**Alvar Alto's furniture**

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**figure 88**

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**figure 89**

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71
The organic theme-dominated the stream of American design in the fifties, particularly in the area of products for the "living-room" taking much of its inspiration from the contemporary abstract sculpture of artists such as the late Isamu Noguchi (1904-1988) and Arne Jacobsen (1902-1971), and the famous sculpures by Klee and Kandinsky in the early fifties. Designers — such as Henry Rosenthal (1915-30) — for instance who worked with Florence Knoll and Kaufmann in the early fifties, combined sculpture with design concepts. His open chair was made to order and emerged an essential in abstract form and simplicity became a hallmark of every mid-century American interior at that period.

**Diamond chair in steel wire**

Henry Rosenthal, 1952

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Streamlining 1935–1955 | New Materials

...more to come...

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Streamlining 1935–1955 | New Materials

by the mid-fifties the two furniture companies Herman Miller and Knoll Associates had created a new abstract, sculptural furniture style that had more in common with contemporary European furniture than with the mid-century American ideas that dominated in the design of consumer machines and automobiles.

**Plastic and metal shell chairs with assorted bases**

Eames Office for Herman Miller Furniture Co.
Streamlining 1935–1955

The Museum of Modern Art acted as an arbiter on the question of what was or was not "good design" and a number of exhibitions with that very title took place there in the early fifties. They emphasized European-derived furniture and applied art products and tended to neglect the indigenous, streamlined American products which flooded the streets outside the Museum. The American automobile became, in fact, a kind of totem for the style-makers of the day, who condemned it as vulgar, utilitarian, and superfluous. A sensible gap opened up in American design culture between the ideas of "styling" and "design" and the democratic principles that had dominated the thirties began to fade. A more exclusive, European-inspired idea of design emerged in the post-war USA that stood in direct opposition to democratic principles and denied the nature of "styling" and mass culture in general.

figure 92

Streamlining 1935–1955

Italy

Italy's design reputation in the mid-twentieth century, like that of Finland, was based on the evolution of an exclusive aesthetic which provided sophisticated items for an international elite. In the immediate post-war years Italy underwent an industrial revolution resulting in major social, economic and cultural changes within which design played a fundamental role. Like America and Scandinavia, Italy moved beyond the merely functional and focused instead on the pre-war Modern Movement, creating a much more expressive, aesthetic, more conscious of the symbolic role of design within modern society.

So this new design in Italy reasserted its former dependence upon architecture and became a much more integrated part of contemporary culture.

figure 93

73
Streamlining 1935–1955

Writing in 1949 about Italian design, the British designer E.H.K. Henriot remarked that he had observed a "family likeness" in a number of newly manufactured products. Among those that had come to his attention were Marcello Nizzoli's "Linson 88" typewriter for the Olivetti company, a coffee machine for La Pesenti by Gio Ponti, Franca Fornari's "Cafetiera" cup, and Pilgrimage engineering company's "Vespa" motor-scooter. They all possessed the same organically curved metal forms. What Henriot had in fact noticed was that the Italians had been quick to pick up ideas about product "streamlining" from across the Atlantic but that they had modified those American methods to create a more elegant Italian version which they introduced after the war in a wide range of mass-produced goods from buses to coffee machines.

figure 94

Streamlining 1935–1955

The sudden emergence of this style in Italy was partly attributable to the rapid post-war industrialisation that had taken place there, with huge investments in new production machinery. The camera for objects that Henriot noticed were so much the result of the mechanising machinery that Italy had imported and of the general decision to move away from the geometric forms of rationalism, which too had uncomfortable political associations.

figure 95
Streamlining 1935–1955

The new architects also took the organic sculpture of Henry Moore, Jean Tinguely and Alexander Calder (1948–1976) as a stimulus other than the squares and cubes of modern architecture.

The combination of these factors led to the emergence of a range of industrially manufactured objects that looked similar. Gavinièse’s “Spalpa” vacuum cleaner for Berco and Nilssen’s “Krivol” sewing machine for Necchi, both designed in the mid-1950s, were superb examples of the Italian line at its best and came to symbolize the role of the Italian designers in Italian cultural reconstruction of the period.

figure 96

Streamlining 1935–1955

Another important factor in the sudden upsurge of Italian design after 1946 was the emergence of a new generation of designers—among them well-known names like Vico Magistretti, Otello Schion, Achille and Pier Giacomo Castiglioni, Gino Sarfatti and others—who had all been trained as architects in the Rationalist tradition in the 1930s but who found themselves without work after the war. They all took the most modest gig as, which was to set themselves up as interior designers in Milan, working with the wealthy clients in that city. They continued this work throughout the forties and early fifties, establishing a name for themselves in the process.

figure 97
Streamlining 1935–1955

Irreverent post-WWII designers made the move from interior design to furniture design; quickly and they began experimenting with new materials – bent plywood, steel rod, glass and, a little later, plastics. They were approached by the new furniture companies, which had either industrialized from the bounds of a small workshop or started from scratch, and were encouraged to develop a new furniture aesthetic that echoed the more adventurous in technical nelves. From the same organic aesthetic that had characterized consumer machines began to appear in furniture designs, aided by the new materials, in particular plywood and plastic frames for upholstery.

figure 98

Streamlining 1935–1955

The exaggerated “streamlined success” forms of the famous designer Carlo Mollino (1905-73) were at one end of the spectrum, while of the other were anything simple little chair made from bent plywood. Foam fillings were used by Zanussi (b. 1915) in, for instance, his “Lady” armchair for Arflex and by Osvaldo Borsani (1911–25) in his reclining chair for Tecno. By the end of the fifties numerous desks, tables and chairs had begun to sprout. Clean lines and modern shapes of the century form sculpture.

figure 99

76
**Streamlining 1935–1955**

*The Architect/Designers*

Lighting designs became pieces of sculpture in their own right, inspired largely by the mobiles of Alexander Calder and the housing establised figure of Alberto Giacometti (1901-66). Companies like Arredoluce and, a little later, Flos, concentrated on design for lighting and asked artists to explore the field: such as Enio Garreis and the Castiglioni brothers, who created remarkable pieces in this period. Technology and artistry developed hand in hand, resulting in countless innovative, highly expressive designs, all of which clearly reflected the post-Humanist mood in Italian culture.

*Alexander Calder, 1966*

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**Streamlining 1935–1955**

*The Architect/Designers*

By the end of the 1940s the youthful enthusiasm of the early years of the decade had died down a little and was replaced by a more sophisticated fusion of technology and form. This was the era of the plastic-laminate chair or a chic, sculptural form, and many of the major designers of the day — among them Magistretti (for Cassina); Zanuso (for Kartell); and Joe Colombo — worked on this project, producing a variety of aggressively modern, brightly colored and subtly curved seating objets.

*Silver-plated coffee service
Sambonet*

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*figure 100*

*figure 101*

The third element in the formula for success in postwar Italy was the unwavering commitment of a number of manufacturing industries to the concept of design. The most significant ones included the electrical equipment firms, Stilleto and Brownstone, the furniture manufacturers Afina, Casina, Tecno and Artimide, and the plastics company, Kartell. Together they produced a complete panoply of products without which little innovation could have taken place. Some of them – Afina, Tecno and Kartell – were led by designers themselves and inevitably saw their contribution to modern design culture as a major responsibility.

figure 102


The Twenties of the early fifties acted as showcases for Italian design, presenting a highly original picture of it to the rest of the world. By the middle of the decade an international consensus was emerging that design in Italy had reached a level of sophistication unsurpassed elsewhere, and had staked out for itself a special role in world trade.

figure 103
Screamin' 1935–1955

When the Bauhaus was closed in 1933 by the Nazis, avant-garde design activity in Germany virtually came to an end. Members of the staff and students dispersed to other corners of the globe and Hitler subverted modern design, professing Neo-Classicism as the style for his regime. A few companies, among them, Arzberg Porcelain works, continued to produce simple porcelain ware in the Modern tradition with the help of designers such as Wilhelm Wagenfeld, Oskar Fehling and Konrad Grassi, but for the most part the period after 1933 was one of isolation for Germany rather than of international Modernism—which was associated with Bolshevism. Ferdinand Porsche's Volkswagen "Beetle," which was not, in fact, mass-produced until after the war, stands as a solitary German achievement of the 1930s.

Opening of the Volkswagen plant, 1938

figure 104

Screamin' 1935–1955

It wasn’t until the early 1950s that Germany prepared herself for a resurrection of modern design and both the Kulturkreis Krefeld and the Werkbund für Kunsthandwerk in Ulm were formed in 1951. The latter institution was headed by sculptor Hans Bill (1928) and took on the brief of bringing on where the Bauhaus left off. It proposed a highly rationalistic, systematic definition of design and, whilst under Bill and later the Argentinean-born Tomas Maldonado, established the lines for the emergence of a new functionalism in post-war Germany. The products that emerged from the school were highly formalised, geometric, standardised wares which raised the machine aesthetic even further than it had already been taken to its first incarnation in the 1920s.

Decorative designs by Rosenthal

figure 105
Streamlining 1935–1955

A new rational aesthetic, which became the basis of what came to be called the “black box” syndrome in modern product design, applied the postwar German design renaissance. It was also visible in the consumer machines produced by the Braun electrical company through the fifties and sixties. Braun was reorganized in the early fifties and brought in designer Dieter Rams (b. 1932) in the middle of the decade. It also initiated a design project with students and staff from the Hochschule of Ulm. All the radios, hi-fi sets, food mixers and razors that Braun manufactured from this period onwards were exercises in pure form which could be adapted down to their last visual detail in terms of abstract formal principles such as harmony and proportion.

figure 106

Streamlining 1935–1955

The postwar re-emergence of German functionalism was more self-consciously stylistic than the earlier decade and it quickly became a major international design language for technical-consumer goods providing a “purist” alternative to the more overtly decorative image of the modern machine provided by Detroit stylists. Japan was quick to emulate the German example transforming it by the end of the fifties into a highly popular design theme synonymous with the world of high-technology products.

You know what practice makes.

Volkswagen Beetle. First conceived by Ferdinand Porsche.

figure 107
Streamlining 1935–1955

Great Britain

Throughout the 1930s Britain had been well behind a number of other European countries and the USA in applying art to industry, and the examples of British "design" from the decade are few and far between. Despite a huge expansion in mass consumption Britain didn't move into the mass production of electrical goods on anything like the scale of the USA. British manufacturing was dominated by the traditional industries (furniture, ceramics, textiles) and so on) in which design, if it were introduced at all, appeared only in goods aimed at the top end of the market. The modern design work of Keith Murray and Eric Ravilious for Wedgwood, for instance, was far from representative of the mass of production which remained geared to traditional markets favoring derivative designs and reproduction furniture.

figure 108

Streamlining 1935–1955

Great Britain

The dominant aesthetic where the decorative arts were concerned was the pared-down styling together of motifs borrowed from America and Scandinavia but without the philosophical commitment that characterized the design movements of those countries. The few isolated examples of modern design to come out of Britain in the 1930s included "Hells Castor" and "Sergei Chermayeff's" radios for the E.K. Cole company (1939), both of them standing exceptions to the general rule.

figure 109
by the second half of the 1950s, the word had become a key differentiator in the lives of more and more people. Mass production and consumption of everyday goods, and design had become a prominent feature of many people's lives. It meant buying and using products which were part of contemporary culture which communicated instant lifestyle values.

The debate about the meaning of "good design" raged strongly in the decade after the war in the established circle of many countries. Many of them tried hard to shape the role of the growing concept of mass culture and mass taste and to hold fast to the traditional craft-based values for designed artifacts with which they were all brought up which meant so much to them. By the end of the 1950s there was a sense, however, that they had failed in their attempts and that they were engaged in an essentially pointless task of trying to impose a set of values upon a reluctant public.
Exhibitions at the Museum of Modern Art in New York were just one attempt to present "good taste" to the world of American design, while in Europe, Gardner Russell wrote extensively on the subject in Design magazine, and in Germany the concept of "good form" was discussed at length. However, the mass environment, design as a high-minded ideal was being replaced by design seen as style in and for itself with lifestyle as its chief ally.

figure 112

A phonological model of design was also beginning to enter the picture in various countries. It led to evolve distinct national styles for their own and different markets within the same country; aged for different styles. It was becoming increasingly apparent during this period, however, that design was an essentially international phenomenon, as an object produced in Germany, for instance, was consumed in the USA. The buying and selling of numerous artifacts functioned, therefore, on a completely international basis, and scenes like the Modern Influence, and the annual August design conferences in Colorado, showed themes that interested the international design community, and the formation of the International Congress of Societies of Industrial Design in these years helped to institutionalize this tendency towards internationalism.

figure 113
Streamlining 1935–1955

Within national boundaries, however, differences in taste were still unresolved and
the gap between establishment and mass
styles expanded to the point where the
designer was presented with a fundamental
dilemma about who he was designing for. In
the mid-1930s, this gap had become, in many
cases, an unbridgeable chasm resulting in a
heightened confusion which threw the question
about design and mass style up into the air
once again.

Wood and metal lounge chair
Paul Fjeldholm

Streamlined Cadillac
1955

Vol 0/1/2
Display
Back
Menu
Quit

figure 114

Streamlining 1935–1955

Two incompatible sets of priorities were
agreed in the years between two World
Wars. American corporate design was
inspired in its initial theory, but thereafter
found itself in the dynamic maelstrom of
aggressively slick cars for the masses of a
vigorous, affluent society with an aggressive
future. Flaring exaggeration on the
hands of the stylists was compared to
"improving" an old-year's model, gave
streamlining a bad name. A counterpart, more sympathetic to human scale, was
provided by both the cool elegance of
streamlining itself and the graphic design
trends of automobile and domestic
advertisements from the late 1940s and, the
bright palette that went with them, disarming
post-war ghastly.

Pittsburgh Tim-Map
1955 Cadillac
General Motors

Road Map
Gulf Oil

Vol 0/1/2
Display
Back
Menu
Quit

figure 115
**America 1950-1970**

This module presents design in America from about 1950 through the 1970s. Design and style had become popular concepts during this period. Design was being sold as a named concept to a larger than ever sector of the consuming public and had become one of the most clearly visible and influential aspects of contemporary mass culture. The work of several well known designers, among them Charles and Ray Eames, Walter Dorwin Teague, and Paul Rand, are made known in this section. (figures 116-166)
America 1950–1970

Introduction

It wasn't until the mid-1950s that the crippling effects of wartime austerity had finally been played out. In Britain, for instance, rationing went on until the early years of the decade and the countries that had been defeated in the war (Italy, Germany and Japan) initially took a while to get back on their feet and to establish their post-war presence in the world market. Instead, they did so it was these established markets and the post-war reconstruction and rebuilding. By 1955 each of them had evolved a sophisticated design policy and style which was to help reinforce their national identities and confidence.

figure 117

America 1950–1970

Introduction

The countries that had emerged victorious from World War II, among them Britain, France and the USA, took a back seat in the deliberate economic exploitation of design. Instead, for instance, so strong an influence on the international decorative arts throughout the nineteenth century and into the twentieth, failed to transfer her energies into the development of an industrial design aesthetic after the war, and so a void, filled from the international picture.

figure 118
The high point of the USA's influence on international design occurred in the earlier years. Its joint achievement of the formation of the consultant design profession and the creation of a new style for mechanical and electrical goods marked out those years as ones of major significance.

The first two phases of the "imperial" phase of design resulted in their rapid decline after 1955. Increasingly from the 1970s, the USA looked to Europe for inspiration, at least where design is a synonym for high culture and "design" was concerned. When mass style was in question, however, a very different picture was rapidly emerging.

World's first all-transistor radio
Sony TR-55, 1955

figure 119

The design legacy that America passed on to the world after the war was in fact two-fold. On the one hand, the professional structure for the practice of industrial design established by men like Walter Dorwin Teague (1883-1960) and Norman Bel Geddes (1893-1958) was exported on a world-wide scale, and consultant design offices sprang up in many countries all over the world, among them Britain, Sweden, Italy, Germany and Japan. They all focused their attention on the design of goods in the mass-market sector — what was once in the thirties dubbed the "furniture industries", that is automobiles and what came to be called, ironically, "consumer durables".

Radion, 1936
Walter Dorwin Teague

figure 120
America 1950–1970

Introduction

The other major contribution of the USA to post-war design lay in the area of mass culture. While the exhibitions of the Museum of Modern Art in New York held in the early 1950s had put European products (Pinoferino's "Cinatola" sports car and Hans Wegner's elegant modern furniture among them) on a pedestal, Americans explained "good design", as on the streets outside the innermost contours of the "American Dream". Ford and Chrysler began to evolve a quite different kind of interest. Coupled with the impact of Hollywood movies, advertisements and pop music, an alternative idea of American culture emerged that was soon to invade the homes and streets of mass-produced culture all over the world.

figure 121

America 1950–1970

Introduction

The consumer society expanded in leaps and bounds in these years and became its ultimate goal. Where material goods were concerned, the American home which was illustrated widely, usually in advertisements for washing machines, kitchen mixers, dishwashers, dish-washers and electric can openers that illustrated the spacious "open-plan" American kitchen, and the huge family automobile parked outside in the garage adjoining the suburban house, were American standards appropriated by an eager European audience the moment it was given the opportunity.

figure 122
America 1950–1970

**Introduction**

There were the "consumerization" years in which, by means of the financial aid that the USA poured into Europe, America spread its culture over the capitalistic world. In doing so it affected the lives of millions of people, many of whom had never before even contemplated the possibility of buying a fridge or a car.

The rapid change in lifestyle experienced by countless people in the industrialized world in the late fifties was a direct result of the influence of the American economy and various country's approaches towards styling and what came to be called "push-in adolescence".

Advertisement for two ranges of Charles Eames seating

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**The New Consumer Society**

One of the most ideas imported into Europe from America in the late fifties was that of the "teenager" who quickly became one of the most important consumers of all. A youth market emerged in those years with a considerable disposable income to spend on leisure goods and lifestyle accompaniments. In Britain the advent of Rock 'n' Roll also imported from America, brought numerous afflictions, implications with it for fashion goods and consumer durables. The ready-to-wear clothing industry, for instance, already fairly well established on the American model by the mid-fifties, was revolutionized. It evolved rapidly to meet the expanding needs of the teenage market, which also needed circumstantial such necessary life-style accompaniments as motocycles, water scooters, transistor radios, hi-fi equipment and other items suited to its subcultural requirements.

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*figure 123*

*figure 124*
The 1960s were dominated by the explosion of mass culture and by a constant search for stylistic novelty. By the end of the decade the optimism of the early years was replaced by a growing awareness of the economic reality of a licensing recession and a feeling that there might be more to design than just style and fun. The oil crisis of the early seventies confirmed these misgivings and, within a couple of years, the high-flying atmosphere of a previous decade had passed into history. The optimism engendered by the first space experiment and the expansion of technology which was seen at first as a cure for all ills, was replaced by a mistrust of such a naive view of the future.

figure 125

Style in the USA centered, throughout this period, divided into two separate strains. On the one hand it was under the patronage of the big corporations and, through them, spread internationally to become the dominant "executive" style of the period. According to this style, and design style determined the appearance of large internationally oriented spaces, such as airports and the office environments of large multi-national companies. The American furniture manufacturers - Knoll, Herman Miller and, on a larger scale, Steelcase - provided the office furnishings for these interiors. The style was characterized by the use of black leather, chrome and glass and Charles Eames' public seating from the period provided one of the models that was widely emulated.

figure 126
America 1950–1970 | Style in the USA

In many ways the style resembled the earlier "Modernist" ideas, but this time around it was much more obviously linked to the ideology and practice of big business. The late buildings of the地铁 Monogram team of mies van der Rohe, Mies van der Rohe and Le Corbusier, showed many of the American settings for this corporate style, which stressed efficiency and economy.

Seagram building, New York
Ludwig Mies van der Rohe
1954–60

David House
Model, rear view

figure 127

America 1950–1970 | Style in the USA

The consultant design teams that survived into this period moved increasingly into corporate design as well as developing what were called "corporate identity" schemes for many of the big organizations. Seagram Associates, for instance, continued, after the death of its founder Walter Dorwin Teague in 1969, to work with the Boeing company designing plane interiors that were responsible but adventurous as well as advertising brochures and graphics that were representative of the American advertising style of that period.

Interior mock-up of Boeing 707
Hiller-Davis Teague Associates, 1956
(Leonard Major, left)

figure 128

91
America 1950–1970  | Style in the USA

Probably the best known industrial designer of these years was Eino Nummi (1921–77) who worked with IBM from the late fifties. Designing a range of “pokal” typewriters that bore his name became familiar in the modern office. Nummi was also employed as a consultant by Mobil and his no-nonsense petrol pumps, whilst being simple, functional products with a strong corporate image for the company, exemplified the corporate style of the stations and service areas.

figure 129

America 1950–1970  | Style in the USA

George Nelson (1910–90) was one of the most influential figures in the development of design in the USA. After studying architecture at Yale University he was awarded the Rome Prize and went to study at the Accademia di San Luca in Rome (1932–34). While in Rome he prepared himself for returning to unemployment in the Depression years in the USA by writing a series of articles on leading European architects. Subsequently he not only brought back to the USA a strong modern European influence, but also found his way into writing about design. He became art director and editor of Architectural Forum — a magazine dedicated to corporate interests and, like Euromat’s Architectural Review, to the promotion of the Modern Movement.

figure 130

92
America 1950–1970

In 1944 he created the Orange Mall, with which he established his reputation as a furniture designer, and two years later his and Ico Parisi wrote "Tension’s House", which started investigations in design.

Nelson worked for Herman Miller as director of design from 1946. There he developed the Action Office system (1954) with Robert Propst, which revolutionized the design of office space, in particular with its subsequent development, the Action Office 2 (1946). The Action Office introduced the concept of change panels as space dividers, thus avoiding central focus on the office desk. Nelson also designed the Teller 2 typewriter for Olivetti.

Nelson Office, Herman Miller Co.
George Nelson, 1964

figure 131

America 1950–1970

While America continued, and still continues, to be highly style-conscious there were, however, relatively few signs of active innovation in most of its furniture styles were imported either from Europe or from Japan. It was not until the resurgence of the Postmodern movement in the late 1970s that America could be said to have given birth to a new design aesthetic that was all its own.

The Duna, contoured plastic chair
Verner Panton, 1960s

Plastics moulded shell chairs
Charles Eames

figure 132
In the 1960s, it had been art directors who had established graphic design, mainly in advertising and magazine layout. In the following decades, designers made themselves an accepted part of business communications between the corporation and its customers and within the company itself. Businessmen and industry increasingly employed designers. How these professionals were to describe themselves was a subject of considerable debate. In 1949, an article in the "Art" section of a magazine, discussed how the need to change their professional title to "visual engineering" or "graphic designers". But the most influential book of the time, Paul Rand's "Thoughts on Design", first published in 1947, links the word "graphic" with "art" and "design".

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Changes in print technology affected the designer's relationship with the industrial processes of all types of printing, letterpress not giving way to lithography. Forms were transferred to paper direct from metal type. The designer still gave the printer instructions for typesetting, but the proofs were often cut and placed in position in the studio ready to be photographed to make the printing plate rather than assembled in the printer's composing room. This gave the designer greater control.

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**figure 133**

**figure 134**
New materials made it possible for the designers to add three to the design in the form of type, and the use of photostat, a simple technique of enlarging and reducing images allowed designers to experiment with changes of scale, negative and positive, and type reversed as white out of solid black. Paul Rand, who had become the most influential spokesman among the country's leading designers, devoted an essay to the use of black.

Rand dominated art advertising and corporate identity design for a long period. From 1941 to 1954 he was art director of the William M. Wainwright agency in New York. In his often repeated Thoughts on Design, he saw the designer as needing to discover a strategy of communication between himself and the spectator. He made the most of the whole battery of modern techniques, particularly collage, photograms, cutouts and drawings from posters, such as, Miro and Arp, and Paul Rand's habitual motifs remained a recurring feature in his work. While Rand used photography, it was usually as a ready-made image and not one he had originated and subverted.

figure 135

figure 136
The sweeping elegantly formed typography is often contrasted with hand-rendering. The signature in the design reinforces the idea that it is the designer, not the client, who is communicating with the spectator.

For an advertisement "to hold its own in a competitive race", the designer must often steer clear of wood clichés by some unexpected interpretation of the commonplace. Rand played a major part in changing the way words and images could be combined to convey a single idea. He was a pioneer of the New Advertising where the spectator was active, not passive, where curiosity was aroused and intelligence needed to complete the sensed.

Poster for the Art Directors Club of New York
Paul Rand, 1958

figure 137

This technique occurred in the Volkswagen advertisements of the 1960s. Type and image were isolated without apparent aesthetic content other than the craft skills demonstrated in the photograph and typography. Headlines appeared as (often incongruous) labels or slogans which repeated the voice of a television commercial. The headlines looked like the spoken words. The text (copy) was made inviting to read by its straightforward arrangement in narrow columns, with short sentences and frequent new paragraphs.

Volkswagen advertisements
Doyle Dane Bernbach, 1960s

Small wonder

figure 138
America 1950–1970

The Designer and the Art Director

Figure 139

American designer Bradbury Thompson used Inspiration to present his ideas on the alphabet. He designed five sets of alphabets for each country, instead of the different designs for capitals and lowercase letters. In 1965 he published his “Monograph,” with lowercase letters enlarged so that they could act as capitals. He saw a continuing trend for small letters to take the place of capital letters at the beginning of a sentence, and he suggested the use of lowercase bold as an alternative.
figure 141

The real content of Portfolio, as in Harper's, was the pictures which he manipulated simply in a painted and dramatic sequence. They demanded nothing from the reader but admiration. Baudvith had produced the book The Artist's Way in 1949, using his own photographs in a horizontal format echoing the proportions of the Russian constructivist. The layout suggested movement by showing some part of the designer's figure, an effect enhanced by the very wide lines of text positioned to reflect the dominant element in the facing photograph.

figure 142
In 1943, Braverman's art director reached a climax of suspension in his work; he used celebrated photographs by his friends and
to create a visual narrative of his own. Such pictures, individual images, without connection or narrative, depended on the art director to give them a
coherent sequence and relationship to the text. This Braverman achieved with the device he often used in magazines: a large initial
on the opposite page to begin the first line of text on the page which was aligned with the key feature of the image on the facing page.

Pages from Portfolio
Alexey Brodovitch, 1951

figure 143

For the cover of the summer issue of Portfolio, Brodovitch reproduced a collaged line design by Charles and Ray Eames. The Eames office in California became important, first as a centre of design activity in California during the Second World War and later in pioneering the use of graphics in multi-screen projected displays, films and exhibitions. Charles Eames was an architect who had been in the
West Coast in 1941 and turned his graphic design.

Back and front of the cover. The Eames Lounge is a trend in the design of modern American furniture and architecture;
incorporating the标准化 mass-produced chair set made by Alcoa, using a condenser individualized name well. The graphic language was similar to Band's, in its influence on the use of cutouts and superimposed photographs.

figure 144
America 1950–1970

The Designer and the Art Director

When Arts and Architecture devoted much of
its issue to Eames’ work, the cover and layout
of the article were designed by Herbert Matter
who worked in the Eames office from 1949 to
1946 and went on to design publicity material
for the Eames furniture firm in New York.
Eames furniture was distributed by Herman
Miller, and the advertisements and
catalogues, designed in the Eames office,
took up the European Modern tradition of
Information Design.

Various issues of Arts and Architecture
Ray Eames

figure 145

America 1950–1970

The Designer and the Art Director

Grapher signs became the way in which the
United States communicated its character to
the worldwide during the period of the
Cold War. In 1958, the Russian-language
magazine America, distributed by the United
States Information Agency in the Soviet
Union, devoted an issue to the American
graphic arts because “to much of the stability
and spirit of this country is expressed in
graphics”. As designer and writer of the
issue called “Caravel of the Sea”, the New
York advertising designer Herb Lubalin
provided a useful summary: “At the heart of
American graphics is the idea, the concept.
All else (photography, typography,
illustration, design) is its handmaiden.”
Lubalin’s career exemplifies a particularly
American type of graphic design and its
development.

Herb Lubalin

MOTHER

figure 146

100
America 1950–1970

The Designer and the Art Director

Like many of the designers whose careers began before the Second World War, Lubell had worked for the Philadelphia Fair. He worked in advertising agencies from 1943. While at Suller and Hershey, his first contribution to the field was using words as images. He introduced the limits of manual typesetting by cutting proofs, composing, and by an attention to details in a way described in a book called simply typography. His father was Harold Lubell, a designer who was a director at the composing room, a typesetting firm which, apart from its exhibition space, published the pre-war film magazine and its successor A-B.

MARRIAGE

figure 147

America 1950–1970

The enthusiastic firms introduced designers to new techniques and in 1946 he produced four small books, with Lerner (1946), with Braungarten, Schragoff, and Spigner (in New York), with David Sorensen and John (in Chicago) and with Lubell (in 1946). They were the earliest expression of modern graphic design in the United States. They caused much excitement in Europe when reprinted in the German print trade magazine Der Brauereigrafiker. By now a combination of words and images were used with oil and varnish, cemented by a graphic arts industry that supplied typography, photography, and printing of expert craftsmanship.

Cover for Udik
Herb Lubell, 1974

figure 148

101
America 1950–1970

The Designer and the Art Director

Lebeye's insistence on the "concept" as the key characteristic of American graphics was underlined by the covers of Esquire magazine where two of the chief designers of the period worked successively as art directors. They were Henry Wolf and George Lois. When Wolf became art director in 1952, Esquire had a logo and a trademark (a round-headed, pop-eyed face with a white mustache). Wolf removed both but exploited and later absorbed them into his photographic or montage cover designs. The face appeared as a phrenological head as the back of a straight-iron chair, on a balloon, on an egg, as a campaign button, as the head on a postage stamp. The editorial pages were designed to fit the context.

Esquire magazine cover
Henry Wolf, 1955

figure 149

America 1950–1970

The Designer and the Art Director

Pages of short stories were laid out in two columns with sober illustrations; features, like that on the New York stock exchange in November 1952, used dramatic photographs filled the page, headings in title-style and bar charts reminiscent of Fortune. Fontalike headings designed into compact groups were typical of Wolf's style, which is integrated with the journalistic idea. The Esquire magazine writer end, commenting on an exhibition of magazine design arranged by Wolf in 1963, "In the complicated business of getting messages out of one mind and into another (communication, they call it), magazines are unique. They are the result of nurture.

Cover for Esquire
Henry Wolf, 1961

THE AMERICANIZATION OF PARIS

figure 150
America 1950–1970

The Designer and the Art Director

Writers not necessarily set style, but certainly set deadlines. You sort of people put magazines together, and their points of view are usually in opposition. These are the word people, the editors, who care about how magazines read. And there are the picture people — who care about how the magazines look. In no other form of communication does this kind of tension persist unabated. No sign of this tension is apparent in pages designed by I. W. W.

figure 151

America 1950–1970

Corporate Identity

The IBM Design Guide was one of the first manuals developed to outline a complete corporate design program. It was intended to establish visual discipline throughout an organization by means of comprehensive rules. These include not only the design of the framework or logo, but also the way in which it can be applied, its size and color in particular situations, the way of setting out every piece of stationery, every package, every address, every sign. In basic was always the trademark and lettering, exemplified, again, by Paul Rand, in a design for Westinghouse, which took account of the possibilities for its animated use in film and television.

figure 152
figure 153

figure 154
The earliest total integration of advertising with corporate identity was achieved by CBS. Television and was the result of an integrated chief executive and the professional commitment of his successor and director. The first was William Golden. After working with John at Columbia, he joined Columbia Broadcasting System in 1927, long before the advent of television. He returned there after the war as art director, and was responsible for its trademark "eyes" with a distinct understanding of its effectiveness for CBS. "If you like the programs it broadcasts, you probably think of its symbol as a good one."

Program Kit for Do Foot
Show of the Month
William Golden, 1957

He also had a down-to-earth account of its sensation: "As a symbol in motion, it consisted of several concentric rings. The outer ring, defined in its round the pupil as an iris diaphragm, which clicked open to show the network identification and then closed tight. A still version was more often used. Golden suggested a year later that they try something else but was reminded of an old advertising axiom: "Just when you're beginning to get bored with what you have done it is getting to be noticed by your audience."
America 1950–1970

The following Golden age for CBS is on a French new-shaper design from about 1950 similar to Bodoni. Golden obliged staff designers to re-shape the alphabet, letter by letter, one letter a week. Yet there was no rigidity of application. Golden did not always include the type, or the symbol, in a long series of press advertisements notable for their playful wit.

TV title for I've Got a Secret
George Eads, 1950s

figure 157

America 1950–1970

Golden died in 1959, and was succeeded by Lou Dorfman, already on CBS staff. Dorfman initiated the most ambitious projects, and emphasized the professional toughness needed to implement them. The designer, he said, "must be able to show that the project answered a need, how it will work, what it will cost, to whom and how it will be distributed".

Some of the most memorable advertisements appeared in the entertainment industry's weekly Variety inserted among the dense typography of columns listing homes for sale. It read simply that CBS programs reached three-quarters of a million more homes than the second network. No reader could miss this, the only item on the page printed in red.

figure 158

106
Golden had said that "corporate image" meant "the total impression a company makes on the public through its products, its policies, its actions and its advertising effort". This Designers achieved its excellent advertising campaign based on the principles of the New Advertising in the manner of Leibniz, using type to make the image, or where type and image, separated on the page, come together in a single idea.

**figure 159**

The corporate image as good design showed in Designers' display of promotional books and annual reports which matched Esquire's in their use of photographs and elegant typography. If it extended throughout CBS with almost music seal, when the company moved to new offices, eighty clerks had to be removed from their desks in order to replace the materials with the standardized CBS lettering.

**figure 160**
The tension that had always existed between the "Good Design" (such as that approved by the Museum of Modern Art in New York) and graphic design that commercial pressures seemed to require, was beginning to find expression. Henry Wolf, successful in increasing the circulation of Esquire, had insights into the awkward professional status of the designer. He saw that problems which should come to us clean and clear and with only the most essential requirements weighing down their charges for a fresh solution, often came to us with voluminous recommendations and research findings which we often again point towards the sacred, safe middle.

Figure 161

The work of large commercial design organisations, like Raymond Loewy's, was based on consumer research, "giving the consumer what they want and plenty of it". Nevertheless, they could produce work that was not, by any standards, inferior to those of the main design groups like Chermayeff & Geismar - Loewy, for example, provided one of his clients, the agricultural machinery makers International Harvester, with a trademark that combined the recognisability of the front of a tractor with the River's initials.

Figure 162
The period between 1955 and 1973 witnessed many changes in the arena of mass style, with the result that both the environment and the popular understanding of the concept has been radically transformed. This has encouraged the development of pluralism and eclecticism, that is, the possibility of many styles coexisting together and influencing each other. Thus "high style" can be generated by an approval of style or it may emerge from rebellions that have developed their own style on the street.

figure 163

The period since 1955 has also seen the final destruction of Modernism, both as a single style and as a philosophical movement that people can be true to a design with what they should like. Commercial manipulation and the mass media now determine the function of documenting styles and making them widely visible. High style can be generated by film (as was the case with Fauvism and Style, The Boyfriend and The Street (both) or it can be sold through color supplements, mass publications in general, or through High Street shops.

figure 164
It is easier to promote style in fashion items and cheap lifestyle accessories than it is in more expensive goods, but by the mid-seventies it was clear that even furniture and electronic equipment had strong "fashion" or "stylistic" elements built into them, and that they were not intended to last for all time.

The desire of "spread simulation" or the lack of means of discriminating style has meant that the design profession is no longer always in total stylistic control and that "street style" is now a strong force within the contemporary culture. Style can now setup its own markets, or even sub-cultures and the "style-makers" have had to become increasingly open to sources coming from all over the place.

Although the efflorescence of the sixties gave way in a more mature period in the early seventies, design and style had by then become such popular concepts that there was no going back. By the end-seventies design was being sold as a needed concept to a larger than ever sector of the consuming public and had become one of the most clearly visible and influential aspects of contemporary mass culture.
CHAPTER 5

TESTING AND EVALUATION

Testing and evaluation of the program were conducted in two phases. The first phase involved a pre-production survey which was administered to approximately fifty (50) students who had previously taken ID course 253 Design History. This pre-production survey was used as a benchmark for developing key CD-ROM attributes.

The second phase was administered to students in ID 253 immediately after an examination on the CD-ROM. Both surveys were developed using a (5) point semantic differential scale. This quantitative approach would facilitate quick, directed responses from participants. Both stages of research revealed interesting insights which will be discussed in this section.

Phase One

The first phase, a pretest, gathered quantitative information in order to establish guidelines for CD-ROM content, direction and program interest. Students who had previously taken Design History 253 were surveyed. These surveys addressed the effectiveness of the instructor, the content of lectures, the quality of related course material, and the classroom environment.

This survey can be found in Appendix C, page 153. The results of these surveys indicated the following:
70% of students surveyed were in favor of CD-ROM course material. Most frequent responses were, students would be able to:

- Conveniently study at different locations
- Review material as often as they like
- Enjoy the interactive nature of CD-ROM technology

20% of students surveyed were not in favor of CD-ROM course material. Most frequent responses were, students would not be able to:

- Ask questions in real time
- Interact with fellow students

These surveys did reveal that a substantial number of students did show interest in the program. Candid interviews revealed that several students expressed the need for improved course material and course supplements. Hand-outs and textbooks were considered inadequate. These responses coupled with other factors gave impetus to the continuation of the project and the development of the CD-ROM program.

**Phase Two**

The second stage involved a post-program, cross-sectional survey immediately following a quiz on the program’s content. These post project surveys were carefully developed with the assistance of Dr. Liz Sanders. They were designed to allow the student to express their open unbiased comments, as well as collect direct, closed-end quantitative information (Appendix D, page 157).

Students were administered surveys immediately following the examination of the CD-ROM material. They were asked to evaluate the program based on their initial expectations, program use, likes and dislikes, appropriate application, and future projections. A total of fifty-four (54) surveys were administered.

The first questions asked were open-ended questions. It was our intent to use this opportunity to acquire impartial comments that may reveal issues not previously anticipated. Students were asked to discuss what their initial expectations of an interactive program would be. Only a handful of students had previous exposure to interactive media programs.
Initial Expectations

Some students expressed intimidation because of a lack of experience using the computer. This may suggest that this medium is more suitable for more experienced computer users. One student (#19) had never even seen a CD-ROM before.

Many students were excited about participating in a new learning experience. The notion of content review with convenience was an overwhelming factor. Students were interested in utilizing a combination of media, (text, image, audio, and time-based motion). These students welcomed a change from the currently used presentation media of videos, slides, and textbooks. Participants were intrigued by having the ability to work at their own pace. Some expected it to be fun, and compared the program to that of a website.

The following is a sample of the testimonies from students whose initial expectations were met by the program (not all comments are noted due to their irrelevance to this project):

Student 1
It was done very well.

Student 2
I was surprised how easy it was to use.

Student 10
It was as I expected it to be but more information than I expected.

Student 12
The CD was beautifully put together (visually) and it was convenient for me to use as a student.

Student 17
It was interactive.
Student 19
I found it much easier than I had expected. I had a lot of fun seeing all the graphics.

Student 20
Yes, because it contained the correct information pertaining to the course.

Student 22
I thought it was well thought out and very thorough in its content. The information provided gave a clear meaning of subject matter and the pictures and sound added to the program for a more interesting way of study.

Student 27
Being a first time experience I expected mild problems, but the CD had few if any.

Student 29
The program exceeded my expectations. I learned more information than I expected my brain could ever absorb. Lots of interesting and useful information.

Student 30
It met my expectations, but I didn’t expect the amount of material presented.

Student 31
The information was thorough and I could work at my own pace. It was longer than expected. The narration was extremely helpful.

Student 33
I enjoy using video and CD-ROMs.

Student 34
It almost can take the place of a book.

Student 35
My few expectations were met but I thought it was too much information.
Student 37
I learned a lot from the disc.

Student 40
It helped us learn a portion of the material for class in a different manner.

Student 44
I liked the program but there was too much material to cover.

Student 46
Yes, I am a visual person and I like to go back and review information. This allowed me to do that. I think that it was organized very well and I got to read it on my own time which was a plus as well... considering how busy my schedule is.

Student 47
I learned broad concepts of the periods.

Student 48
It was much more fun than I expected, but it also had much more information than I thought it would.

Student 50
It met them and then some. Once I realized what was entailed, I was impressed by what we were given.

Student 54
Navigation was good, pictures, text and voice-over made it interesting. I'd love to see video clips of an instructor once in a while. It was much better than a textbook.
The following is a sample of the testimonies from students whose initial expectations were not met by the program (not all comments are noted due to their irrelevance to this project):

Student 3
There was just a vast amount of information to learn and fact after fact was just thrown in my face.

Student 6
It should have been interactive for instance, clicking a picture and having it go full screen.

Student 7
At first it was going great, but then I got frustrated with the length of the subjects.

Student 9
It was well done but I would have preferred that it have been less broad. It glanced over the work of many designers.

Student 13
There were no review questions, and I would have liked to zoom in on the pictures to get a better look.

Student 14
I think it was very well put together. I just think that the info should be consolidated more.

Student 16
I was not able to copy the images like I can in a book.

Student 18
It was an enjoyed break from the textbook but essentially a book on tape... sort of.
Student 21
Too much material covered and it didn’t seem like 2 weeks of lecture.

Student 23
I had difficulty running it on my PC. It was well set up, but long. I think too long to keep a student’s interest. I did however hook it up to a G3 [Macintosh] and I really liked the music.

Student 24
I had a hard time paying attention for long amounts of time.

Student 32
It wasn’t fun

Student 36
No, it was an online book.

Student 41
I was overwhelmed by the amount of information.

Student 45
I felt the CD-ROM took me a lot longer than if I would have had a lecture on it.

Student 49
I think it could be a useful tool but it needs work, and I much prefer learning from an instructor.

Student 50
I would much rather read printed text than stare at a monitor for hours on end.
Analysis of Expectations

A statistical analysis will show that the program met the expectations of 58%, while it did not meet the expectations of 42% of the students. Although these numbers are not in overwhelming favor of the program, they are not discouraging percentages. Many students expressed positive aspects of the program despite it not meeting their initial expectations. After a review of these comments, the overall length of the CD-ROM program put off most students. This brings me to an interesting point of analysis.

It appears that there is a different perception of time when engaged in a classroom setting versus home or independent study. The CD-ROM program in its pre-testing phase was timed at just under 4 hours. This would be the equivalent of 2 class meeting periods. However, many students expressed that the program was too long.

This may be attributable to all of the ancillary things that go on in a classroom like attendance taking, special announcement and the circulation of course material. The reason for this disparity in time perception is not clear and is an area that deserves a level of research unto itself. This problem may be solved by dividing the content into smaller, more digestible modules. Evaluation mechanisms can be built in to call upon the user to perform a self evaluation of their progress and comprehension of the material. These and other recommendations regarding this issue will be discussed in Chapter 6.

Learning Styles

Participants were asked to describe their learning styles. They were given the choice between concrete experience (feeling), active experimentation (doing), reflective observation (watching), abstract conceptualization (thinking), or any combination of the four. This was taken from D.A. Kolb’s “Learning Styles and Disciplinary Differences.”

Students were asked at the end of the survey to give an overall assessment of the program. Of the students who rated the program good to excellent, 72% of them described their learning styles as “active experimentation”. Conversely, of those students who rated the program poor to awful, only one student considered their learning style as “active experimentation”. There may be a clear correlation between these statistics and
the effectiveness of this type of learning tool. Kolb’s study revealed that the favorite question of an “active experimentation” learner is “how does this work”, and they tend to enjoy “hands on” experiences a great deal. This may suggest that this type of medium may be more suitable for this type of learner. That certainly is not to say that it is not as effective for different learning styles, but these “active experimentation” learners may be the early adopters, and opinion leaders of this type of medium.

Interdisciplinary Focus

I wanted to look specifically at how each discipline within the design department would evaluated to the program. Students were asked to identify their area of focus. The evaluations were rather consistent amongst product designers, interior space designers, and graphic designers. These evaluations are shown in the following chart which outlines the programs overall rating by discipline. (figure 167)

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Moderate</th>
<th>Poor</th>
<th>Awful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Design</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Interior Space</td>
<td>0</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Graphic Design</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

figure 167

This chart shows no clear likes or dislikes amongst these slightly segmented groups.

Navigation and Usage

An overwhelming number of students navigated through the program in a linear fashion. Seventy-four (74) percent of students used the program this way. Although given the opportunity, only twenty-six (26) percent used it in a combination multi-linear and linear fashion. I believe this is due to two factors. First, the length of the program and the amount of information may not have facilitated enough time for exploration and experimentation. I believe if given more than two weeks to use the program, the
percentage of users of multilinear navigation would increase. Secondly, there is a certain level of safety and convention in studying history in a chronological manner. Identifying appropriate influences between designers and periods may not become immediately apparent if navigation (or reading) occurs in multiple directions.

Although the advantage of multilinear navigation was not utilized as anticipated, the audio options were used quite frequently. Participants used the audio portion of the program in a variety of ways. Twenty-seven (27) percent of students read the text on screen with the audio muted. Twenty-two (22) percent of students listened to the audio narration while following along with the text, while forty-four (44) percent of students used a combination of reading text at certain times and listening to audio at certain times. The audio feature options appear to be one of the program’s attributes that offer benefits to a variety of users in a variety of situations.

The program was most commonly used by participants at home. Despite several computing labs on campus, eighty-five (85) percent of students used the program at home. Many students expressed the reasons for this are due to convenience, comfort and ease of scheduling. This statistic may prove valuable as proposals for distance learning and home schooling continue to come to the fore.

As far as computing platforms go, the debate on the most effective medium rages on. Today, Windows/PC computers command approximately 85% of the personal computer market. Although design students were involved in this study, and the Macintosh appears to be the current tool of choice, platform statistics seem to hold true in this case as well. Seventy-seven (77) percent of participants used the program on Windows/PC machines. This is a statistic that multimedia authors must pay attention to. There are several cross-platform issues that exist in multimedia development. Effective multimedia authors will probably have to be proficient in both platforms and realize the advantages and disadvantages of both. We may soon see a migration in multimedia authoring from the Macintosh to Windows/PC based computers. Educators should begin (if not already) to address this issue with software developers, authors, computer lab directors, and users.
Program Attributes

Just as instructors are evaluated on their performance from quarter to quarter and year to year, so must learning programs. It would not be practical to expect an experimental program such as this to come out of the gate with no areas of improvement. Students were asked to rate what they liked and disliked about the program. Some of the outcomes were very predictable on the positive side. However, the negative side did reveal certain shortcomings in the program that are valid. These shortcomings must be addressed if improvements are to be made for future programs. They may also give rise to other media that do not have some of the shortcomings of CD-ROM technology. The program’s attributes were rated as follows:

Students found these attributes to be a positive part of the program:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can set my own hours for study</td>
<td>63%</td>
</tr>
<tr>
<td>I can review material conveniently</td>
<td>50%</td>
</tr>
<tr>
<td>I can review the material as often as I like</td>
<td>40%</td>
</tr>
<tr>
<td>It is an engaging, interactive medium</td>
<td>35%</td>
</tr>
<tr>
<td>I can study at several different locations</td>
<td>29%</td>
</tr>
<tr>
<td>I like working on the computer</td>
<td>29%</td>
</tr>
<tr>
<td>I can study the material in any sequence I wish</td>
<td>27%</td>
</tr>
<tr>
<td>I like to study by myself</td>
<td>26%</td>
</tr>
<tr>
<td>I would be better prepared to ask questions</td>
<td>7%</td>
</tr>
</tbody>
</table>

Other attributes cited were the ability to control pacing, multiple images with captions, music and audio narration, and a welcomed change from existing learning tools.

Students found these attributes (or lack there of) to be a negative part of the program:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>I cannot flip through it like I can with a book</td>
<td>62%</td>
</tr>
<tr>
<td>Was not able to print out hard copies</td>
<td>48%</td>
</tr>
<tr>
<td>I can’t ask questions of my instructor real time</td>
<td>40%</td>
</tr>
<tr>
<td>I enjoy the interaction with my fellow students</td>
<td>38%</td>
</tr>
<tr>
<td>Too many technical problems arise</td>
<td>25%</td>
</tr>
<tr>
<td>I enjoy attending scheduled classes</td>
<td>16%</td>
</tr>
<tr>
<td>I don’t like working on the computer</td>
<td>16%</td>
</tr>
<tr>
<td>I like studying in groups</td>
<td>14%</td>
</tr>
</tbody>
</table>
Other comments with regard to product improvement were the inability to highlight text and images.

These statistics show that students are looking for a variety of benefits from a program such as this with the most important ones being convenience, scheduling, and the ability to review material as often as they like.

In the area of product improvements, there are three areas that need attention. First, 62% of participants were displeased because they were not able to flip through the program like a book. This is a problem that most media contained within a computer screen have. Many people have had difficulty in dealing with the framing effect of computer screens. This may be improved by incorporating an index, page numbers and an outline view, which can show thumbnails of the entire contents of the program.

The second area for improvement would be to offer a printing feature during program use. Currently, the authoring software used does not provide the user with this option. This is one area where the World Wide Web has a distinct advantage. This does however bring up the argument regarding fair usage and copyright. Material contained on a CD-ROM is "read only" and may allow authors to categorize their products under the "Fair Usage Exception". However, by giving students the ability to copy or print material, this may spark some level of copyright issue and infringement. Currently, there are no clear cut guidelines regarding this and should be a topic that is closely followed by educators, multimedia authors, and legal advisors.

The final point to address in the area of program improvement is the ability to ask questions of an instructor real time. Forty (40) percent of participants raised this issue. This may be an issue that speaks to the structure of organized class sessions. I believe that the maturity level of certain students has a bearing on the effectiveness of a program such as this. Home study involves self discipline, therefore, this may be a medium suitable for a more mature demographic such as working professionals, graduate students, and "just in time" learners at remote locations.

This is not to say that this type of program will not be effective in the context in which it was used. This problem of not being able to ask questions of the instructor may
be resolved by adding periodic review and discussion sections, summaries, and mini-quizzes. These can be presented as QuickTime video clips or interactive tests with hypertext links back to specific sections of the program for review. Students may also be able to use email to contact their instructors.

**Future Development**

Students were asked if they would like to see additional CD-ROMs developed for Design History as well as other courses. Seventy (70) percent of students were in favor of this. The main reasons cited aside from the previously mentioned attributes were because of its added variety to current course material and its comprehensiveness. What is interesting about this statistic is that it garnered the same percentage of favorable responses in the pre-development surveys. Whether students had used the program or not, these statistics show that interactive CD-ROM learning has about a 70% adoption rate. Of the 30% of students who were not interested in seeing further development, they were in favor of live instructors.

There are several ways in which CD-ROM learning can be beneficial. Participants surveyed expressed a variety of future applications for this type of product. Students envisioned its most appropriate use as follows:

- As a supplement to live lectures by an instructor: 52%
- As a distance learning program (home study): 37%
- As a replacement for textbooks: 26%
- As a take-home study module as presented in ID 253: 24%
- As a presentation medium for an instructor: 22%

Very few students felt that this medium could act as a substitute to an actual instructor (7%). However, when asked the question on how would they like to take this course if given a second opportunity, the majority of students said just as presented in this study (with an instructor with a CD-ROM take-home module). CD-ROM learning and other distance learning media may not be able to replace teachers, but it is certainly a learning medium that is of interest to a majority of students.
Perceived Cost

Students were asked to compare their perceptions of costs to that of their textbook. The textbook for the course cost approximately $30.00. The majority (63%) of students felt a comparable body of information presented on CD-ROM would cost somewhere in the range of $25–$50. Only 18% felt it should cost between $50–$75. Multimedia authors must carefully monitor production and distribution costs if this is to be regarded as a “for profit” medium.

Overall Assessment/Student Participants

The final portion of the survey asked participants for an overall evaluation of the program. The percentages breakdown as follows:

Excellent 9.2%
Good 37.1%
Moderate 37.1%
Poor 12.9%
Awful 3.7%

These statistics show those students rating the program from excellent to moderate comprised 83%. Fifty-five (55) percent of which rated the program as excellent to good. Ratings between poor and awful made up only 16.6%.

Instructor Evaluation

One of the initial goals of the project was through its application, reduce the demands on teaching faculty. In addition to this, I wanted to get a perspective on how this medium could positively effect teaching faculty in ways not currently realized.

Certainly one of the advantages is its versatility of application. As described earlier, the program was utilized in ID 253 Design History. Professor David Bull instructed this course in the autumn quarter of 1998. Upon reflection, Professor Bull describes his experience with the program as a positive one. He described the program as another means of delivering information to students and an opportunity for students to experience the course material through another medium.
Another advantage that can not only be realized by teaching faculty but the students as well is its mobile archival quality. One area that students consistently express their displeasure with survey courses is the inability to reference slides and videos presented in class, for visual identification on quizzes and exams at a later date. Handouts may resolve this problem in part, but is not a practical solution for video segments. Color photocopies are cost prohibitive and a certain level of quality is lost through black and white reproduction. The archival nature of CD-ROMs allows each student to reference and review visual information as often as they wish after the material has been presented in a lecture.

Although there is a significant amount of production time spent preparing a program such as this, it can now be utilized over and over again. If revisions to the program are appropriate for future utilization, production time will be minimal. In addition, Professor Bull needed significantly less preparation time for the particular class sessions the program was utilized in.

Additionally, this tool can be used as a cleaner, more seamless approach to presenting material. An example of this is a comparison to using projected 35mm slides. This medium forces the presenter to move in a linear fashion. If a student asks a question related to material that is not contained in the particular slide carousel being used, it is difficult, and rather inconvenient to change carousels or reload slides. Many times, the question is answered without the aid of a visual reference or it is put off until the following class session. This problem can be resolved by using interactive CD-ROM as a presentation medium. The presenter can instantaneously link to a related module, or via an index, navigated to related topics, visual examples, video clips or narrative.

One other advantage to note is in the event that an instructor is unable to attend class, course delivery can continue remotely, with students using this medium for take-home study.

Professor Bull envisions the future use of this program in ID 253 as an in class teaching tool which can then be linked to a course website for review and the cross referencing of information. Furthermore, it would be ideal to develop the entire course on CD-ROM. These future modules would be developed with less text and more
interactivity. Textual elements would be bullet pointed and the CD-ROM content would be expanded upon in course lectures. Hypertext links would be utilized to show more parallel relationships between designers, styles, periods, and philosophies.

To summarize, Professor Bull’s experience with the program was beneficial. There are areas of improvement (some at the recommendation of Professor Bull) necessary for future applications that I will discuss in Chapter 6. We can say that as a teaching aid, the application of this medium has a wide variety of usefulness to teaching faculty. It can effectively be used as a presentation medium, for archival purposes, as a distance learning program, and for database/file management.

Based on the statistical analysis of surveys, coupled with the qualitative interview with Professor Bull, I will conclude that the program demonstrated a level of success amongst a majority range of students and was useful to teaching faculty. I will expand on these conclusions and discuss future developments in the following section.
CHAPTER 6

CONCLUSION

As teaching professionals, we have a responsibility to vigorously encourage our students to explore, research, experiment and discover. As more and more students aspire to become designers, it will become essential that we maintain quality, strong values, and high expectations. By providing valuable supplements to design education curriculum students will be better prepared and more versatile in the area of professional practice. CD-ROM based learning programs can be one of these supplements.

We have seen the effects that interactive CD-ROMs and the Internet have had on day to day commerce. We have seen its application in entertainment and commercial venues, websites, business software, and interactive kiosk. Although we are beginning to see new media used in academic settings, I believe that electronic media’s potential for delivering educational content has not fully been realized. Interactive multimedia can be used as a vehicle to move the learning experience to a higher standard.

Because interactive multimedia and the Internet are primarily visual media, its incorporation into design education is a logical one. The myriad of advantages offered through these media may begin to change the paradigm in design education.

This thesis project and its associated research has shown that the use of multimedia in a classroom setting can indeed be effective for delivering course content while alleviating some of the demands of teaching faculty without compromising the quality of education for students.
Manage the Medium

A program of this scale must be viewed not only as a design problem, but a logistics and database management problem as well. Academic multimedia learning programs must involve a team of people. It should be managed via a central resource that includes full time professionals who understand the learning process. Educators that are considering similar programs must look to resources well suited and experienced in this medium. Its success will be based on an amalgamation of efforts. Scriptwriters, voice talent, sound engineers, legal advisors, multimedia authors, and designers will play a collective roll in the development and success of programs such as this. Furthermore, it will become incumbent upon design educators via new course offerings to train designers on how to bridge the gap between the framework of print media and the kinetic demands of electronic new media.

Learners and the Importance of Interactivity

As educators, we are now faced with a more heterogeneous group of learners. Learning styles, multiculturalism, and age demographics are just some of the factors that contribute to this diversity. We must begin to look at new ways to deliver instructional material in an effort to effectively educate this changing group of students. New media may be one of the answers to this issue. It has the ability to empower students to not only work at their own pace, but to become an active participant in the experience rather than a passive one.

We have a responsibility to understand how students learn best. A restructuring of schools is slowly taking place across the country (Means & Olsen, 1994). This view suggests that students retain knowledge better when they uncover it for themselves, as opposed to the traditional method of linear transmission from teacher to student (Perelman, 1992).

With a rapidly increasing body of knowledge in the design arts, it presents challenges for the instructor to gain expertise in all facilitates of design education. Perhaps the management of content on CD-ROM will assist instructors in confidently discussing subjects that are not within their particular area of expertise.
Computer information scientists define interactivity as two-way electronic or communication systems in which response is direct and continual. The new paradigm of interactive study places learning with the learner. It removes the need for gatekeepers or to time-serve, or to conform to structures of knowledge built on premises that could be out of date. It has been argued that teachers’ failure to use technology is caused by a lack of training, and funding. However, the real failure of teachers to embrace technology is that technology threatens the primacy of the teacher as a source of knowledge. The old paradigm was that the teacher must use the technology to teach the technology. The new paradigm of eclectic education involves learners using technology to learn. (Forsyth, 1996)

At the same time, little is offered about interactive multimedia or the Internet having attributes that could hinder learning. There are limitations caused by access and equity issues. These relate to access to the technology, the ability to be supported in that access and limitations caused by the computer-based nature of these media. (Forsyth, 1996)

A further implication of the use of new media is that it does nothing to alter a teaching style in terms of preparation, planning and presentation. Teaching will still require introduction, exposition, reiteration, feedback and evaluation. Teaching will still require testing and evaluation. However, the use of new media may require the scope for teaching and learning activities to be broadened. (Forsyth, 1996)

There is one caveat that must be considered by educators. Computers and technology can sometimes be perceived by their users as a panacea. They may also believe that these learning programs are intended to be similar to games and entertainment, and the information will be easily absorbed. Students will have to make the same investment in time when studying with this type of program as if they were attending a structured class. This must be made clear to students and teachers at the outset. Students will still have to work diligently at digesting and analyzing the information that is presented. New media puts the control and responsibility on the learner due to its engagement and need for interaction. The elements of meaningful interaction and engagement are critical for the success of a program such as this.
Another implication will be on the expectations placed on students. They will have to be active in their learning process. "Teaching as telling" places the student in a passive learning role. A change towards, or an increase in illustrative and vicarious experiences requires the students to become more active participants in the learning process. This increase in activity on the students' part should not be seen as instructors doing less. In fact, instructors will be just as important to the learning process, but activities such as the guidance of student work will become more central to the instructor's role than the "teaching" function. Students will still learn, but lecturers will become "coordinators of learning experiences" (Rogers, 1969).

Time

Further analysis should be conducted to understand the perception of time and how it differs in a classroom setting versus a distance learning environment. As stated earlier, students must realize that the time commitment for a distance learning product are the same as if they attended a scheduled class. Several users in this case felt the length of the CD-ROM program was too long, although it fell just short of the amount of time they would have spent in the classroom. Several factors may have contributed to this perception that should be examined.

First, users may feel a shackling or confining effect when seated at a computer for an extended period of time. Further studies should be initiated to see what the threshold for computer study is.

Secondly, multimedia programs should give the user more sense of closure. Multimedia robs the user of the tactile sense of ending a book or a chapter. Multimedia authors should incorporate some visual reference that users are concluding a module. One other possibility is to design a program that would not allow students to advance through the stages of the program until they have demonstrated competence in a particular section. This may give the user a sense of accomplishment.
Benefits

CD-ROM programs have several benefits over similar electronic media such as the Internet, videotape, and satellite broadcasts. For example, CD-ROM avoids the problems of access, connection, access time, and modem speeds that are so problematic for Internet users. Although high-speed connections do exist, the majority of home users are still connecting to the Internet via a modem. The massive size of this particular program would have been too RAM intensive to be quickly viewed via current web browser technology.

As Internet connection speeds increase, this program can easily be converted to a web compatible document using HTML tags and Macromedia’s Shockwave compression software. In the not too distance future we may see CD-ROM based programs used for archival purposes and secondary distribution, with the internet being the primary deliverer. In the mean time, CD-ROM based programs offer a mixture of desirable attributes to users as well as educators.

Users of CD-ROM learning products are also afforded the benefit of repeated review of visual images. Projected slides have been utilized in lectures for ages, and there is no denying their usefulness. Unfortunately, there is no practical way (with the exception of black and white photocopies) for students to take home these images for additional study in the area of visual identification. Archiving these visual references on CD-ROM, coupled with its relatively low distribution cost, offers educators a solution to this problem.

Hypertext and Hypermedia

The inherent benefits of hypertext and hypermedia at first may be difficult to understand. Traditional linear narrative has been greatly imposed on our daily lives. The medium of CD-ROM is somewhat discomforting to some users because of this. Linear narrative is seen over and over in television, books, news media, conversation, and lectures. The new medium of hypertext may begin to challenge the formal aspects of traditional narrative. As we look toward the next millennium, hypertext/hypermedia may offer new and more effective ways to deliver fictional and non-fictional content. A new reading aesthetic may be developing on the horizon. The potential of hypertext (as seen
with the World Wide Web) is promising. The possibility now exists to link hypertext/hypermedia documents via the internet. This would allow students to study in significant depth, well beyond their prescribed textbooks. It can enable an infinite amount of navigational possibilities to other authors, figures, ideas, and concepts on a global level.

**Appropriateness**

As we move forward, educators must carefully evaluate how well new media learning tools will fit in to their circumstances. There are some situations where this type of learning is not particularly appropriate or effective. I believe there should be a high level of involvement for the course material amongst students. For example, a required course necessary for a degree, information that pertains to a job or career interest or other important reasons for the student. Educators must also realize that live classroom discussions will not take place. This will facilitate either internet chat and bulletin boards or perhaps be delivered only to students who are more mature and are responsible enough to work diligently at their own pace.

User should be comfortable with using technology. If learners are intimidated by the delivery system, it may create hurdles and undo stress that deters effective learning (as seen in some instances in this particular project).

**The Internet**

One of the exciting possibilities of this media is the development of hybrid programs. The technology now exists to develop CD-ROM programs that will link directly to webpages via hypertext links. Using these media in tandem will be ideal for data intensive programs. This will however involve even more coordinated efforts amongst multimedia authors. These types of programs must be aligned with reputable sources. Websites come and go or are updated rather frequently. Any changes to website URLs will create error messages when trying to link via hypertext in a CD-ROM program. If information is to be updated it is imperative that an open channel of communication between web and multimedia authors be maintained.
The Future

It is easy to become enamored with technology. There is a curiosity factor that exists amongst multimedia authors and users. We must be careful not to place our priorities on bells and whistles at the sacrifice of content. We must manage this content and use the power of multimedia to enhance the content. We must not lose site of how this technology can effectively be used to teach.

Additionally, working professionals can clearly benefit from this type of learning medium. We are already beginning to see web-based course work on the Internet. The question still remains, which medium will be more appropriate for image, sound, and animation intensive course material. We should also keep abreast of technological developments in the areas of software, hardware and programming to determine the future direction of this media.

CD-ROM offers a tremendous amount of versatility. Teachers and learners can utilize it in a variety of ways that suit their specific needs. Additionally, multimedia is easy to use. It follows the same conventions as the World Wide Web, whose user base is increasing at an exponential rate. This medium of CD-ROM gives greater freedom to the user but it does require self-discipline. Most importantly, CD-ROM and other new media allow us access to even more information.

Significance

This thesis project should not be considered an exhaustive study on multimedia, nor is it inclusive of the amount of information necessary to implement an entire course in a distance learning environment. It does however show that a module of a lecture-based course can be successfully developed and implemented in an advanced learning context. There are clear benefits to the use of this medium for learning not only for students but as well as teaching faculty. It also reveals specific program attributes and interactivity needed to successfully develop these types of programs. Furthermore, technical, hardware and software considerations have been outlined for authors and designers interested in developing similar projects.
The study also shows that there is a moderately high level of interest in using this medium for learning in a variety of applications. The adoption rate for this type of learning is very favorable indeed. These indications give impetus to further development of ID 253 Design History on CD-ROM, as well as other design related courses for classroom use, distance learning, or commercial distribution.

**Recommendations**

1. Revise CD-ROM to include more interactivity, QuickTime movie clips, animation. Additionally, the overall content should be scaled back.

2. Develop additional CD-ROM modules, incorporating the above mentioned revisions.

3. Develop a website for ID 253 as a companion to a CD-ROM product

4. Further research should be conducted in the area of copyrights and distribution.

5. Further research should be conducted to determine the correlation between interactivity and learning styles.

6. Develop a “New Media Learning Center” within the department of Industrial, Interior and Visual Communication Design that will design and coordinate multimedia and Internet learning programs for the university as a whole.
Annotated Bibliography

The following bibliography represents research on topics relevant to this thesis project. It incorporates references to design education, new media, CD-ROM application, distance learning and the Internet.

Books


Burgess, William E., *The Oryx Guide to Distance Learning*. New York: Oryx Press, 1994. This comprehensive guide provides information on 298 institutions offering over 1,500 media-assisted courses for which academic credit can be earned. It discusses the effective use of electronic media in an academic forum.


Garner, Ruth, and Mark G. Gillingham, *Internet Communication in Six Classrooms*. Mahwah: Lawrence Erlbaum Associates, Inc., 1996. This book looks at the Internet and the classroom as it relates to communication and social activity. Six different case studies are discussed, showing examples of this technology as informative, entertaining and persuasive.


Heller, Steven and Daniel Drennan, *The Digital Designer*. New York: Watson-Guptill, 1997. This book takes a critical analysis of the definition of a graphic designer as the influx of interactive multi media affects our visual language. The authors try to answer questions on how will designers and educators deal with the change that this digital medium has brought forth and how schools are trying to integrate this new medium into traditional design curriculum.
Heller, Steven and Seymour Chwast, *Graphic Style*. New York: Harry N. Abrams, Inc., Publishers, 1994. This book attempts to address the how and why of style by tracing the roots and development of several periods. The authors discuss the origins of these visual concepts which include the aesthetics of Swiss, Memphis, American New Wave, American Post-Modern and others. It includes a time-line with references to influential designers and educators.

Hollis, Richard, *Graphic Design: A Concise History*. London: Thames and Hudson Ltd., 1994. Hollis has put together a quick reference, but comprehensive document on graphic design history. This book contains over 800 illustrations and will be used a a supplement to other design history text.

Janal, Daniel S., *101 Successful Businesses You Can Start on the Internet*. New York: Van Nostrand Reinhold, 1997. Discusses the logistics on setting up seminars and education content on the Internet. It sites case studies and describes the Internet as a logical medium to deliver this type of information because the Internet is primarily a visual medium.


Meggs, Philip B., *A History of Graphic Design*. New York, Van Nostrand Reinhold, 1992. Regarded by many as the most comprehensive source on design history. This book has become the standard text used in many graphic design history programs. Meggs' survey begins with the invention of writing after the pictograph and moves forward up to the computer graphics era.
Mok, Clement, *Designing Business*. San Jose: Adobe Press, 1996. A look at using technological innovations to develop usable products and services, without being distracted by the technology itself. Using case studies, the book follows a progression from problem to solution showing how the links between business and design are becoming more evident.


Roberson, Virginia Lee, *Careers in the Graphic Arts*. New York: The Rosen Publishing Group, Inc., 1993. Discusses a career in graphic arts, outlining the educational requirements and training. It offers a list of schools offering design education with tuition and fees indicated.

Sparke, Penny, and Emma Dent Coad, Felice Hodges, Hugh Aldersey-Williams and Anne Stone, *The New Design Source Book*. New York, Knickerbocker Press, 1997. This book will be our primary resource for the development of CD-ROM course material. This text, which covers the disciplines of graphic, product and interior space, begins with the Arts and Crafts Movement. It follows a chronological progression to the early 1990s.

Swann, Alan, *The New Graphic Design School*. New York: Van Nostrand Reinhold, 1997. This book illustrates basic principles of graphic design as it is currently taught and learned in art schools. It uses real examples of students' work, discussing evolution, process and medium. This book could be used as a source for setting up projects.

Periodicals

Behrens, Roy R., “On Graduate Education and Graphic Design.” *Print* Nov/Dec95, Vol. 49 Issue 6, p74. A report on graduate-level design education from it’s inception through it’s evolution. Examples of trends and changes are discussed.


Cross, Lisa, “Internet to Emerge as Top Info Source” *Graphic Arts Monthly,* Jan97, Vol. 69 Issue 1, p20. Focuses on the results of the survey on proposing that the Internet will become the top source of information in the United States by the year 2000. It compares the use of television versus the Internet as primary sources for delivering information.

Dolan, David, “Art and Design Education for an Unknown Future” *Craft Arts International,* Issue 40, p71. Examines the long-term results of formal art and design education. Reasons why broader intellectually based total visual education offered in
university art and design schools is a better investment than superficial competency-based design training.

Greenhalgh, J.B., “Using the Internet: Concept to Classroom.” *THE Journal*, Sept97, p15. An examination of the application of the Internet used in the classroom. Sample projects are described and increased training needs in the area of computing are discussed.

Gregory, Diane C., “Art Education Reform and Interactive Integrated Media.” *Art Education*, May95, Vol. 48 Issue 3, p6. Argues that technological advances will require a transformation of the educational community. Takes a close look at Yale University’s “Perseus” project.

Helfand, Jessica, “Digital Soup” *Print*, Jan/Feb95, Vol. 49 Issue 1, p96. This article examines the use of interactive multimedia in design education. It reports on a study using students participating in interpretive thinking projects.

Hellerstein, Rebecca, “The Eclipse of Visual Education.” *Regional Review*, Fall95, Vol. 5 Issue 4, p5. Comments on the decline of visual education in schools, cuts in funding for the visual arts, and the renewed interest in visual analysis.


Lewis, Robyn, “In the Academy: PRINT’s Survey of Design Schools.” *Print* Nov/Dec95, Vol. 49 Issue 6, p60. 1995 Survey of graphic design education in the United States. Included are student and faculty responses and project samples.


McCoy, Katherine, “Professional Design Education: An Opinion and a Proposal” *Design Issues*, Vol. 7, No. 1, Fall90, p20. The author presents the argument that the practice in current undergraduate design schools is to train students through highly specialized, narrowly focused curricula. She questions why this remains a trend, considering other pre-professional programs are more broadly based like medicine or law.

Schrum, Lynne and Theodore A. Lamb, "Computer Networks as Instructional and Collaborative Distance Learning Environments." *Educational Technology*, July/Aug 97, Vol. 37 Issue 4, p26. This article focuses on the advantages of using the Internet as an instructional tool and the types of information currently available.

Shannon, Michael J., "Toward a Rationale for Public Design Education" *Design Issues*, Vol. 7, No. 1, Fall 90, p29. This article deals with the subject of design as a profound cultural force that requires the attention of educators at the public school level. He proposes that public education in design will reestablish it as a comprehensive, empowering principle in our daily lives.

Sharples, Hadley, "Internet's Role Debated" *Graphic Arts Monthly*, Jan 96, Vol. 68 Issue 1, p72. This article references Bill Gates’ book “The Road Ahead” and comments on the significance of the Internet on the graphic arts industry.

Swanson, Gunner, “Graphic Design Education as a Liberal Art” *Design Issues*, Vol. 10, No. 1, Fall 94, p53. The author states that current design education merely amounts to a very specialized vocational training, and fails students that are not employed as graphic designers. To counter this he proposes a strategy of integrating design studies with liberal arts.


Video Tapes

Brandenburg Productions, Incorporated. *The Internet Show*, 1994. Best selling author John Levine and computer columnist Gina Smith give a light-hearted but comprehensive orientation to the Internet. They discuss some of the many applications that may be applied to this new and important means of communication.
Cringley, Robert and John Gau Productions. *Triumph of the Nerds*, 1996. Chronicles the history of the personal computer, now the world's third largest industry. Leading industry figures offer their opinions on the future direction and potential of this emerging technology.

White Rain Films, Limited. *Internet for Educators*, 1996. This program includes interviews with working educators sighting examples of how to integrate the Internet into the classroom. Effective techniques for using the Internet for students as well as fellow educators are demonstrated.
CD Production Bibliography / Visual References
The following bibliography represents visual references used in the production of the CD-ROM program.


Thormann, Ellen, *Tamara de Lempicka*. Berlin: Reimar, 1993


Weiermair, Peter, *Frederick Kiesler*. Innsbruck: Allerheiligen Presse, 1975
Appendix A

Quiz 5 - CD-ROM Content
Quiz #5

The Match 2 points each

- de Lempicka
- Dreyfuss
- Dandy Porsche
- de Golden
- Cassandre
- Emery Thompson
- Le Corbusier

Multiple Choice: 4 pts each

11. After the death of Art Director William Golden, this figure continued the implementation of a strong CBS corporate identity program:
   A) Moholy Nagy  B) Lou Dorfman  C) Condé Nast  D) Ivan Chermayeff  E) Lester Beall

12. This figure designed an annual report cover for the New Haven Railroad, whose geometry carried faint echoes of the railway posters of Cassandre:
   A) Ray Eames  B) Eliot Noyes  C) Herman Miller  D) Jean Dunand  E) Herbert Matter

13. The Action Office system was designed by:

14. This building was not erected in the Art Deco style (period):
   A) Hoover Factory  B) Strand Palace Hotel  C) Guggenheim Museum  D) Chrysler Building  E) Grauman’s Theatre

15. The Vespa Motor Scooter was a product of this country:
   A) Italy  B) Germany  C) Scandinavia  D) France  E) Great Britain
Multiple Guess: 4 pts each

21. Mackintosh's work was a major influence on which American Architect:
   A Helmut Jahn  B Michael Graves  C Bucky Fuller  D Angus Young  E F.L. Wright

22. The Secessionists would love which movie title:
   A Intersection  B Breaking Away  C Something About Mary  D Give me Shelter

23. Samuel Bing’s L’Art Nouveau Shop was in which city:
   A Darmstadt  B Milan  C Glasgow  D London  E None

24. Otto Wagner’s Postal Savings Bank in Vienna was innovative in use of which material:
   A Silk  B Concrete  C Decorative Tile  D Bent Wood  E None

25. Mackintosh referenced which historic icons for inspiration:
   A Madonna  B Royal Dalton  C Celtic Motifs  D Backgamond Boards  E None

Fill in the Blank: 4 pts each

26. The two most common themes of Art Nouveau are

27. Sisters were known as the Glasgow Four.

28. Koloman Moser co-founded the

29. Gustav Klimt uniquely utilized

30. William Morris would have admired the Viennese architect

Short Answer: Looking for broad understanding of key concepts 20 pts

Some critics argue that Art Nouveau was a decadent movement of just mere decoration. Explain the counter point to this argument in the sense of Art Nouveau being a “modern” or international development. Use specific design examples and describe key characters’ philosophies to strengthen your points.

Bonus —

2 pts

Explain the relationship and influence of Glasgow on Vienna — how it developed, who were the players, and what was the significance of the Viennese Architects’ work on the future of architecture?
Appendix B

CD-ROM Distribution List
### Design History

**Design 253**
3 credit hours

**Autumn 98**
Tues & Thurs
1:30 - 3:18 pm
162 Hopkins Hall

---

### CD distribution

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<th>Name</th>
<th>Name</th>
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<tr>
<td>Amago, Justin</td>
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Appendix C

Pre CD-ROM Development Survey
Curriculum Improvement and Evaluation

Through the evaluation and correction of course deficiencies, it is my intent to develop new and improved design course curriculum. In an effort to establish a benchmark for future development, I am asking that you kindly participate in the following survey.

The specific purpose of the survey is to get your retrospective evaluation on your experience in Design History 253. The information used will assist us directly in improving any deficiencies while, preserving the positive aspects of the course. Your responses will be held in the strictest of confidence.

Please rate all categories using the sliding scales below. Check only one response unless otherwise noted.

![Sliding scales](image)

**Instructor**

The instructor conveyed a thorough knowledge of the course material

![Sliding scales](image)

The instructor was well prepared for each class session

![Sliding scales](image)

The instructor clearly communicated the subject matter

![Sliding scales](image)

The instructor's accessibility outside of your assigned class period

![Sliding scales](image)

The instructor was engaging and encouraged class participation

![Sliding scales](image)

**Course Objectives**

Course goals and objectives were clearly presented

![Sliding scales](image)

Objectives were helpful in developing understanding and appreciation

![Sliding scales](image)

Objective encouraged independent work

![Sliding scales](image)

All three design disciplines were equally balanced and emphasized

![Sliding scales](image)
Lectures

Presentations were well organized

- 5
- 4
- 3
- 2
- 1

Instructor spoke clearly and audibly

- 5
- 4
- 3
- 2
- 1

Instructor presented material at an appropriate pace

- 5
- 4
- 3
- 2
- 1

Instructor presented material at an appropriate level

- 5
- 4
- 3
- 2
- 1

Instructor adequately summarized material to aid retention

- 5
- 4
- 3
- 2
- 1

Instructor discussed topics in sufficient length

- 5
- 4
- 3
- 2
- 1

Instructor spent an adequate amount of time covering your discipline

- 5
- 4
- 3
- 2
- 1

Course material was relevant to your professional development

- 5
- 4
- 3
- 2
- 1

How much time per week did you dedicate to studying outside of class?

- 5 hrs
- 4 hrs
- 3 hrs
- 2 hrs
- 1 hr

Course Material

The textbook(s) was a good choice

- 5
- 4
- 3
- 2
- 1

The textbook(s) was clear and readable

- 5
- 4
- 3
- 2
- 1

Do you reference this textbook(s) currently?

- Yes
- No

Did you sell-back your textbook(s)?

- Yes
- No
Handouts were a valuable supplement to the course

Films used in the course aided learning

Environment

The scheduled class time was convenient

The scheduled class time was conducive to learning

The amount of students in the class was conducive to learning

Please list any distractions that effected your ability to learn

Summary

Were you satisfied with your final grade?

Yes  No  Indifferent

Please rate your overall assessment of the course

What could your instructor have done to increase your interest or participation in class?
Appendix D

Post CD-ROM Implementation Survey
CD-ROM Evaluation

The specific purpose of this survey is for you to evaluate the interactive CD-ROM module introduced in Design History 253. Your candid responses are a vital part of the success (or failure) of this program and will be held in the strictest of confidence. This information will assist directly in improving any deficiencies while preserving the positive aspects of the program. Please use the reverse side for additional comments.

1. What were your initial expectations of an interactive CD-ROM learning program?

   

2. Did the program used in Design 253 meet your expectations? (Please explain)

   ○ Yes       ○ No
What best describes your learning style?
- Concrete Experience (feeling)
- Active Experimentation (doing)
- Reflective Observation (watching)
- Abstract Conceptualization (thinking)
- Other ________________

What is your area of focus?
- Product/industrial design
- Interior space design
- Visual communication/ graphic design
- Undecided

How did you navigate through the program?
- In a linear fashion (chronological order)
- In a multi-linear fashion (using hotlinks and submenus)
- In both a linear and multi-linear fashion
- Other __________________

When using the program did you...
- Read the text on screen (audio off)
- Listen to the audio narration
- Listen to the audio narration while following the text
- A combination of reading text at certain times and listening to audio at certain times
- Other __________________

Where did you use the program? (Check all that apply)
- Home
- Computer lab at school
- Office
- Other __________________

What type of computer system did you use the program on? (Be as specific as possible)
- MAC __________________
- PC __________________

What did you like about the CD-ROM program? (Check all that apply)
- It is an engaging, interactive medium
- I can review material conveniently
- I can set my own hours for study
- I can study at several different locations
- I can review the material as often as I like
- I can study the material in any sequence I wish
- I like working on the computer
- I like to study by myself
- I would be better prepared to ask questions
- ______________________
- ______________________
- ______________________

What did you not like about the CD-ROM program? (Check all that apply)
- I can't ask questions of my instructor real time
- I enjoy attending scheduled classes
- I enjoy the interaction with my fellow students
- I like studying in groups
- Too many technical problems arise
- I don't like working on the computer
- Was not able to print out hard-copies
- I cannot flip through it like I can with a book
- ______________________
- ______________________
- ______________________
How do you feel this technology can be most effectively applied in a learning environment?
- As a supplement to live lectures by an instructor
- As a replacement for text-books
- As a distance-learning program (home-study)
- As a presentation medium for an instructor
- As a take-home study module as presented this quarter in Design 253
- Other
- Would you like to see additional CD-ROM modules developed for this class or others?
- No... why
- Yes... why

How do you feel you performed on the CD-ROM quiz as compared to your other quizzes?
- much better
- somewhat better
- about the same
- not as good
- much worse

How would you compare the CD-ROM to your textbook?
- much better
- somewhat better
- about the same
- not as good
- much worse

If given the choice, would you like to take this course...
- A) With a live instructor in a lecture setting presenting slides and video
- B) With an interactive CD-ROM (remotely) with email contact with an instructor
- C) With videotape (remotely) with email contact with an instructor
- D) Via the internet (WWW) with email contact with an instructor
- A combination of... (Check all that apply)
  - A
  - B
  - C
  - D
  - Other: ______________________________

What other features/options would have made this a more effective learning tool?

What is your overall assessment of the CD-ROM program used in Design History 253?
- Excellent
- Good
- Moderate
- Poor
- Awful

If you are interested in participating in additional studies regarding this project, may I contact you?

Name: ______________________________
Email: ______________________________
New Media

Would you be interested in receiving your course on an interactive CD-ROM to use on a personal computer?

Yes ☐ No ☐ Indifferent ☐

If yes why… (Check all that apply)
☐ I can review material conveniently
☐ I can set my own hours for study
☐ I can study at several different locations
☐ I can review the material as often as I like
☐ I can study the material in any sequence I wish
☐ I like working on the computer
☐ I like to study by myself
☐ I would be better prepared to ask questions

If no why… (Check all that apply)
☐ I can’t ask questions of my instructor real time
☐ I enjoy attending scheduled classes
☐ I enjoy the interaction with my fellow students
☐ I like studying in groups
☐ I don’t like working on the computer

In what manner would you like to see a CD-ROM on Design History organized (Check all that apply)
☐ Chronologically (by dates)
☐ By specific discipline (VC, Interior Space, Product)
☐ By periods (Modernism, etc.)
☐ By schools (Bauhaus, etc.)
☐ By countries (U.S., Germany, etc.)
☐ By styles (New Wave, etc.)

Would you be interested in taking this course if you could arrange your own class schedule?

Yes ☐ No ☐ Indifferent ☐

How much time per week would you dedicate to study if you did not have to attend an assigned class period?

5 hrs ☐ 4 hrs ☐ 3 hrs ☐ 2 hrs ☐ 1 hr

Testing

Which knowledge assessment method would you prefer?
☐ Quizzes every week
☐ Quizzes every two weeks
☐ Mid-term and final exam
☐ Mid-term and final essay
☐ Final exam only

Your design discipline

Visual ☐ Interior ☐ Product ☐