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An Informative CD-ROM for WPI Admissions

An Interactive Qualifying Project Report

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Abstract

This project incorporated many marketing, research, and technical related skills to create a CD-ROM for the WPI admissions department. The CD-ROM brings technology and society together by helping prospective students and their parents make knowledgeable decisions about higher education. By implementing cutting edge technology the CD-ROM demonstrates WPI's position as a leader amongst technical universities.

Executive Summary

Focusing on the interaction between society and technology, this Interactive Qualifying Project created a CD-ROM for the WPI Admissions office. Previously only used in limited situations, this CD-ROM and the technology implemented is intended to inform potential students better about WPI and create a appealing view of the college life at WPI. Many different production aspects were involved in the creation of the CD-ROM, such as research on the medium, target market, and other business principles. The physical creation of the CD-ROM completed the cycle technology benefiting society, the most important aspect of this project.

Introduction

Today society mandates that one be proficient in the use of computers to be successful. The computer has become a household item that many people cannot live without. Worcester Polytechnic Institute is on the leading edge of this major transition of computers into mainstream society and continues to lead as the technology scheme changes. This Interactive Qualifying Project, an informative, interactive CD-ROM, continues WPI's trend towards technological supremacy in today's colleges and universities. Many high school students have access to computers in their homes and in their schools. Building on this premise, this IQP intends to use the technology that is available for students and give them a concise overview of WPI as a school and as a community.

The project group set out to create an interactive CD-ROM that provides admissions information to high school students interested in attending WPI. An interactive CD-ROM is a type of information repository that uses computer software to create an interface that offers attractive and easily navigable menus to the user. These menus grant choices to the user as to the course of menu navigation and information display, allowing the user to "communicate" with the software to define points of interest.

Description

The goal in creating the CD was to design it in a manner that allows the user to have fun and maintain interest while learning about our school and its community. The project group decided to use students of WPI as narrators and commentators during video clips that would allow the user to see first hand what kind of students attend Worcester

Polytechnic Institute. In playing this role, the students would speak about many different issues ranging from the Higgins Labs wind tunnel to Washburn Shops Nuclear Reactor, the WPI Plan to the Worcester Centrum. No one thing about WPI or its community is to be left out, the CD provides for prospective students all the information prospective students need to know about the family at WPI and the Worcester area. The information being introduced to the high school seniors is conveyed in a manner that illustrates the fun and excitement college students experience in their time at WPI.

The CD-ROM is designed to run on nearly any computer with CD and web browser capabilities. The structure of the information presented is very easy to understand and relatively straightforward. Since the target audience consists of students that have some technical understanding, the overall feel and presentation of the CD-ROM should be familiar to the user since it coincided with resources, such as the world wide web, to which the user has almost undoubtedly been exposed. Since the interface is partially menu driven, the information is tailored to the user, this insures that the navigation is smooth and information is conveyed precisely by the CD-ROM. Given the high capacity of data storage provided by a CD-ROM it is possible to incorporate sound and video clips into the media creating a fun and exciting presentation of information. This yields a very effective presentation of WPI showing our technological as well as social facets.

Justification

The technical definition of the Interactive Qualifying Project can be referenced in the WPI 1998-99 Undergraduate Catalog.[1] The discussion of higher education in the world today is a very important one. It is a decision that should be based on many

factors, which can be conveyed to the student in different ways. Until now the admissions department has mainly used the brochure/paper method of distributing information about WPI and the WPI community. The brochures use vivid colors, interesting facts, and pictures about WPI to make the reader want to know more or to persuade the reader to attend WPI. With our project, we are bringing technology into the admissions department approach. Through the use of CD-ROM technology we believe that the admissions department will benefit more than with the previous use of mainly pamphlets. The CD-ROM contains much more information and is more exciting and interesting as a result of the use of multimedia. Introducing video and sound into presentations is a large improvement over the conventional paper media, and it is this technological advantage that demonstrates the impact this CD may have with a prospective student. With this multimedia, the user can be shown a real life representation of WPI and the community. The technology goes where traditional paper media cannot and has the potential to progress further with many enhancements. While the brochure media has some advantages, we believe that the CD-ROM has many more and will in the long run benefit the admissions department with better-informed prospective students.

The essence of the Interactive Qualifying Project lies in the intent to bring together technology and society so that a person or group of people can benefit through technical advancements. Through the development of this CD, the Admissions department gains a hold on a thorough presentation that clearly demonstrates the power, and focus of the education plan at WPI.

Background

Media

Historical Materials

Developed by Sony and Phillips corporations in the early 1980s, CD-ROM, or Compact Disc Read Only Memory, is a compact disc format used to hold text, graphics and hi-fi stereo sound. CD-ROMs hold 650MB of data, which is equivalent to about 250,000 pages of texts or 20,000 medium resolution images. It shares many characteristics of an audio CD, but uses a different track format for data. In fact, CD-ROM technology for the personal computer came from the success of the CD-ROM in the music industry. The audio CD player cannot play CD-ROMs, but CD-ROM players usually play audio CDs and have output jacks for a headphone or amplified speakers.[2]

Originally these drives were very slow when compared to today's high-speed drives. However, the potential for both the drives and the large capacity of information on a CD was realized, and CD-ROM use exploded. The CD-ROM has become an indispensable part of today's computer. Whether used for application installation or data storage CD-ROMs have become a very integral part of personal and business computing. Since one in every three computers in use today has a CD-ROM drive, the technology shows no sign of recession. Manufacturers are developing faster drives and discs that hold much more information, and this should increase the desirability of having a CD-ROM drives.

A CD-ROM drive (also referred to as a player or reader) connects to a controller card, which is plugged into one of the computer's expansion slots. Early drives used a proprietary interface and came with their own card, requiring a free expansion slot in the computer. Today, most CD-ROMs for PCs use the SCSI or EIDE interface and can be installed without taking up an extra slot.

The first CD-ROM drives transferred data at 150KB per second. The speed then doubled to 300KB, then quad speed at 600KB. Today, CD-ROMs have surpassed 10 times their original transfer rate. Access times run from a slow half-second to under 100 milliseconds. [3]

Audio and data reside on separate tracks and cannot be heard and viewed together on earlier drives that are not CD-ROM XA compliant. Unlike other optical disks, CD-ROMs, as well as audio CDs, use a spiral recording track just like the "ancient" phonograph record.

Types of CD-ROM Drives

Earlier CD-ROM drives used a caddy. The disc must be inserted into the caddy, and the caddy inserted into the drive. Today, most CD-ROM drives are caddyless. The disc is placed into a tray.

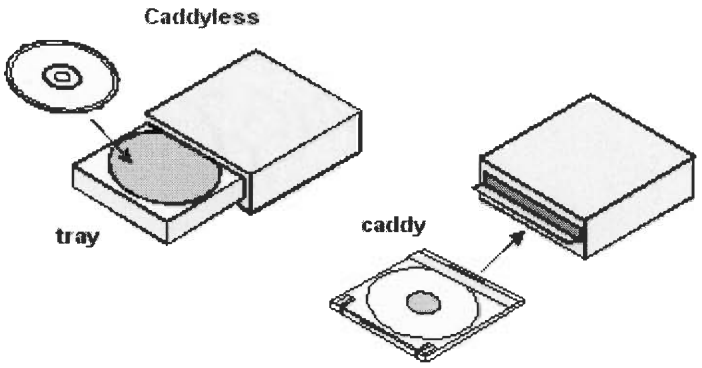

Figure 1 Different CD-ROM Drives[4]

Reading a CD-ROM

Digital data is carved into the CD-ROM as pits (low spots) and lands (high spots). As the laser shines into the moving pits and lands, a sensor detects a change in reflection when it encounters a transition from pit to land or land to pit. Each transition is a 1. The lack of transitions are 0's. There is only one laser in a drive. Two are used here to illustrate the difference in reflection.

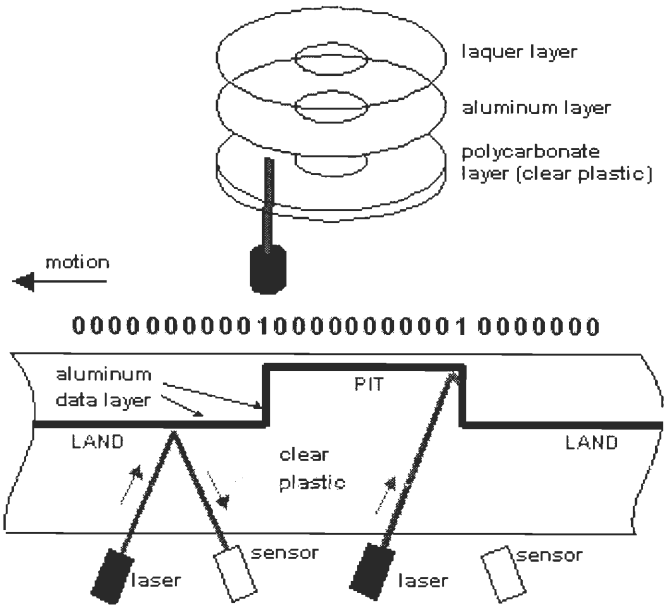

Figure 2 Reading of a CD-ROM[5]

Creation of a CD-ROM

Figure 3 shows the physical creation of a CD-ROM. This method usually implemented for mass production of the media and can be contracted to special duplication companies. The method that was implemented for this project is less time consuming and more cost effective. There is technology available to create or burn a CD-ROM with the correct machinery, software, and a home personal computer. Once the data and program files were assembled we used software and a recordable blank CD-ROM to transfer the information. From this master copy we will then be able to make duplicates using essentially the same process. Using this process we may create duplicates of our CD-ROM whenever needed or desired.

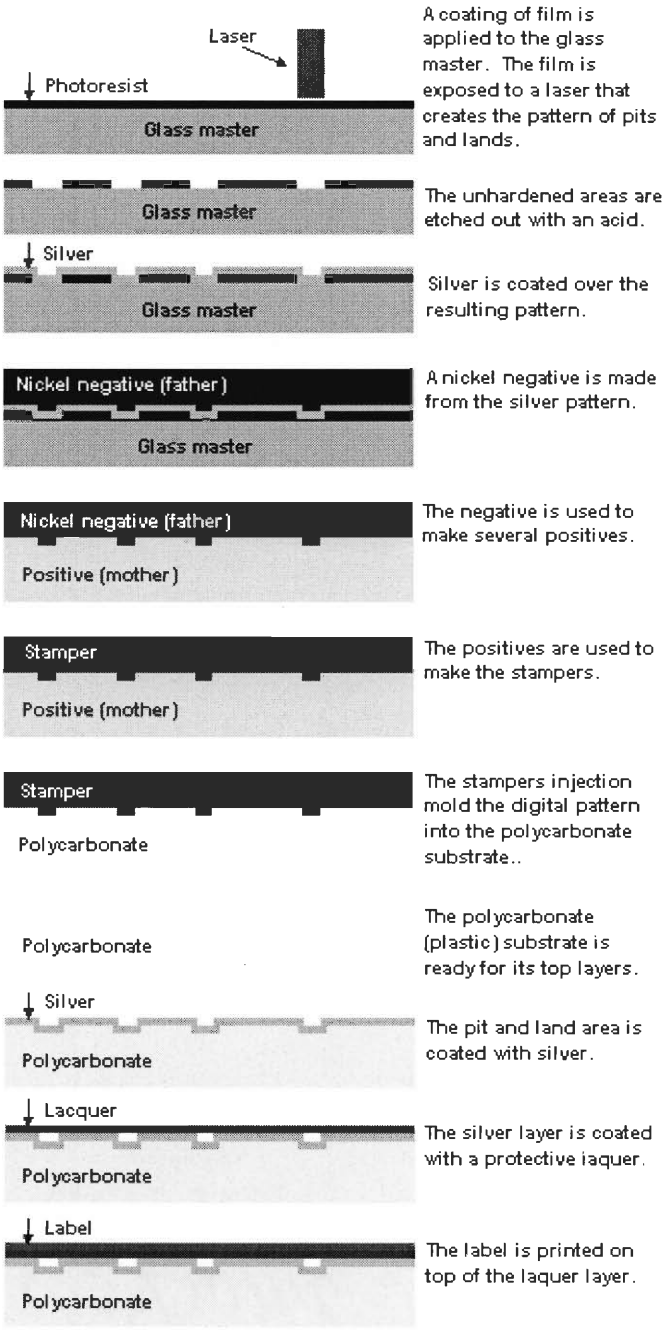

Figure 3 Creation of a CD-ROM[6]

CD-ROM Possibilities

The possibilities of the chosen media are nearly limitless. Almost any type of data that one can see or use on a personal computer may be stored on a CD-ROM. CD-

ROMs have found a niche in today's market as a software distribution media. This is due to the relative cheap cost, transportability, and speed within a computer. Simple text or very complex moving images and sounds may be implemented to convey the message to the end user. As is the case with other demonstration and informative CDs this project uses a healthy mix of all three visual methods, which ensures the users attention.

Advantages/Disadvantages

A CD-ROM presentation has many advantages over other forms of media in conveying information. The most common form of information distribution is the pamphlet or booklet containing text and pictures of the subject matter. The size of the paper and the attention span of the reader usually limit these types of handouts. Although inexpensive, easy to manufacture, and readily transportable, paper media not contain enough exciting attention getting information/multimedia. Society has become more inclined to prefer concise and dramatic presentations which are usually found when reading through and informational booklet. More often than not, information needs to be eye-popping, attention getting, brain candy to be effective. A CD-ROM experience has the ability to contain those very elements. Video recordings of materials can be very effective with motion video and graphics however they do enable selectivity. The user must accept the information in the order that it is conveyed with this media. A person does not have the ability to select what they see, they must sit through the whole presentation which can become tiresome. Again young people may loose interest with the length and not receive a complete experience. A CD-ROM takes all of the strong points of the other media devices and combines them in one complete package. The CD-ROM created for this project contains text, video, and audio. With the evolution of

knowledge of the average high school senior in the area of computers, the student using the product should have no trouble at all finding the information about WPI that they want in a manner that will be fun. The format of the CD-ROM is tailored to the end user. They can choose what to see and what to skip. The user can watch motion video or focus on reading text such as statistical data or financial aid numbers. Whether they choose to view multimedia to catch the eye and excite, or to read text/data to make major decisions, the experience is completely under the control of the information-craving user.

Human Computer Interaction

General Principles of User Interface Design

Human computer interaction, the study of how people use computers, is a very important subject in the development of this project. It is at the very heart of the interaction of society and technology, the basis for the IQP, and must be thoroughly utilized. If well-documented characteristics of interfaces were not adapted to this project it would have been doomed for failure. To know what the end user needs to be efficient is very important when created an application, which conveys information via a computer. Only, with the most efficient interface to the information will society benefit from the technology that has been created through this project.

One of the most important principles in interface design is to realize the user's capabilities and understand the user's needs, which are shown in the target market section of this report. The most common causes for ineffective interface design are assumptions made by the developers. An example of this would be supposing as a developer that all users think alike when using an interface regardless of their skill level or experience with

the interface.[7] The considerations for designing an interface are very different from using the interface for the first time. As a developer progresses further into the design of an interface, the ability to imagine his or herself as a first time user becomes more and more difficult because of the familiarity with the interface. When developers design an interface, they understand the logic and origin of the design. Thus the interface appears to be easy and self-explanatory to the developer. Users of an interface may come from various educational and technical backgrounds. They are not as familiar with computer systems as the developers, and are there to use the computer for one or several specific purposes. The computer, and therefore the interface, exists as a tool for the user. This idea illustrates why a developer must not only consider the ease of use of a specific interface, but also how robust the interface should be, taking into consideration all of the characteristics that an interface needs to accomplish to be effective. Therefore, the end result exists as a compromise between functionality and ease-of-use.

Another important principle is product compatibility and consistency.[8] In most cases, the users have already invested time in learning a previous system and are familiar and comfortable with it. Consistency between the old and new system can lessen the learning curve associated with the new system and help users predict how to accomplish tasks in the new system, thus eliminating or reducing the need for additional learning.

In order to reduce the time spent learning a new interface, it should be arranged with as much simplicity as possible.[9] The methods of data exchange between the user and a computer program such as a box to type in text, a button to click, or a check box to select, should be intelligently arranged in a fashion that makes sense to a wide range of users. A properly designed interface can be handled with only a few steps and should

give clear explanations of each step.[10] A complex interface can be very overwhelming and confusing to a new user and tedious to navigate for an expert user.

Direct manipulation is when the interface allows the user to directly execute or perform action on the interface's objects. Direct manipulation interfaces permit the user to maneuver items on a screen, which helps the user to visually understand exactly what is happening with those items.[11]

Users generally prefer to have a high degree of control in the tools they use. They will be discouraged and become frustrated if they do not find themselves at a comfortable control level with respect to the program. That is, if they don't feel at ease and in control of the interface, it becomes less of a tool and more of an annoyance. Therefore, the interface should have a high degree of interaction between the system and the user. An example of a direct manipulation function that fulfills these needs is moving a window on a screen or a file from one storage device to another, where the window or file is dragged from one location to another, making use of a graphical representation of the object being moved. This allows the user to watch the results of his or her actions and facilitates actions made by the user. Microsoft's Windows 98 is a good example of a direct manipulation interface.

Most of these actions made available to the user involve a combination of complex computations and functions. However, complexity and robustness both take a good deal more computation time than simple operations. Response time is an important consideration when designing a computer interface. If functions requested by the user take longer than normal, some indication to the user should be made. It is helpful to inform the user of how long the system will take to accomplish a task. Informative

messages such, as "working..." or " please wait..." should be provided as an update for a user to inform him or her of a progress update.[12]

In addition to system messages, the interface should also contain some degree of flexibility.[13] For example, the interface should provide both mouse and keyboard functionality where it is possible to select either device, which allows users of any skill level to feel at ease. This is best seen in complex graphical interfaces, such as Windows, MacOS, or any other operating system based around on-screen objects and windows. A good interface provides keyboard shortcuts for routine tasks, which negates the necessity for a graphical manipulation of on-screen objects. For instance, copying a file from one location to another can be accomplished with a few simple keystrokes instead of physically moving a mouse, opening multiple windows, making a number of motions, and other common tasks.

Finally, the interface should be designed to be both easy to learn and use for new users and efficient and easy to use for the expert. The ease of use and overall learning curve are the main elements of the interface's success.

Guidelines for Optimizing Screen Displays

The format and content of the information displayed on the screen is very important in determining the success of an interface. If the information displayed is confusing or does not provide the users with what they need, it is ineffective. The information presented on the screen should always be concise and avoid the inclusion of unnecessary detail. Information should be grouped together based on similarities and relationships. In addition, it is sometimes necessary to draw the user's attention to specific pieces of information presented. Some of the most useful and effective

techniques to accomplish this are color-coding and graphical borders, when dealing strictly with graphical objects.[14] When dealing with text, some methods used in manipulating text are uppercase letters, flashing, underlining, making a line bolder or brighter, and using a color that stands out from the rest of the screen.[15]

Menu interface

A menu is a list of options from which the user selects a desired choice. In menu-driven interfaces, the users are usually asked to pick one or more choices from a list.[16] Choices may be presented in two ways, either a list of words or a group of icons, each representing a different entity. Choices may be selected by a motion and click with the mouse, by moving a cursor with the keyboard, or by entering a selection text from the keyboard.

Menus can be, and often are, multi-layered. They consist of cascading screens where each cascade follows an individual choice made by the user. Each screen usually contains one question; thus several or even many screens are necessary to complete a given task.

Fill-in Forms Interface

The fill-in form interface provides the user with a number of text fields in which data is inputted manually.[17] Well-designed fill-in forms facilitate the use of an interface, making clear both what can be done in a specific instance and providing a method of completion. Clear captions and instructions for valid input can provide users with the necessary formats and procedures to correctly fill in the form.

In contrast to a menu, with a fill-in form users can answer more than one question at a time because many input text fields appear on a single fill-in form screen. Therefore more space is available for user input on the screen.

Fill-in fields are efficient when the necessary input consists of a number of values. An example of this would be if the program requires that the user specify a name, an address, and identification number. Intelligent labels for each of the input fields should be utilized to help the user understand which fields correspond to which entries. Because there can be several fill-in fields on a single form, users can get a broader context of the information than they would with a menu interface.

Fill-in form interfaces always present all the required fields, and whenever new functions are added to a system they will appear directly in the interface. Thus, a user will always notice when new functions are added, because an addition adds one more step in the completion of the fill-in process.

The disadvantages of fill-in form interfaces are that the developer assumes that the users know, and will always follow, the valid input format and that they have good and accurate typing skills. Although good caption in the fill-in form already provides a user with enough information of what type of input is required and the correct format of input, this does not eliminate the possibilities of typos and mistakes.

If users are not touch typists, then this type of dialog style may be slow relative to others such as menus, or direct manipulation, which require less, if any, typing. Even if users have good typing skills, typing presents opportunities for user input errors, so fill-in forms may be more error prone than other dialog styles. Fill-in forms also require knowledge of special keys for form navigation such as field to field and screen to screen.

Unless the developer instructs users on the use of these keys in each instance of use, users will be required to remember the correct keystrokes in every instance.

Fill-in Form Design

Fill-in forms should be designed to support a task or tasks. Items in forms should be grouped by sequence of use, frequency of use, and relative importance to yield efficiency.[18] Text fields most often used should be categorized together and located at the top of groups. Required text fields should also appear at the top of the groups, while optional fields should appear at the bottom. In this way, groups are organized by a precedence of importance. This simplifies the completion of a form, as the most information or required information is the easiest to find. Group size should be "limited to 12 to 14 characters wide and 6 to 7 lines high".[19] This makes navigation within a screen easier. However, as more groups are added, increasing search times result, even if group size is small.

White space should be used between groups to makes objects on the screen easier to see.[20] Besides white space, lines, borders, or even color can help users to distinguish differences between groups. The advantage of color for separating groups of information is that, unlike white space and borders, it does not take up any additional screen space.

Information should also be broken down into individual screens. Keeping related and interdependent items on the same screen will minimize screen navigating and input errors.[21] Also to minimize errors, default information should be provided whenever possible. Simple single key strokes such as "Enter", or hotkeys, for instance, typing just D for Delaware when selecting a state from a list of all available states, should be allowed for acceptance of defaults.

Dialog Styles

Another form of data entry from a user is demonstrated by question and answer dialogs. An example of a question and answer dialog exists when the users are presented with a sequence of questions, one at a time.[22] The users are expected to type in an answer rather than select one from a list of suggested answers.

The question and answer dialog style is useful when the information presented is self-explanatory and the response can take on many possible values. However, there are several disadvantages in using this dialog style. This type of dialog requires a good amount of typing from the user, which leads to input errors. It is also very inflexible. Most question and answer interfaces require the users to answer questions in a particular order. Because questions are generally asked one at time, as the user cannot see what questions are being asked next as he or she fills out the form. In a situation where information context is important, this format could be problem.

Questions on an interface also require certain characteristics to be used successfully and intelligently. Questions should always be stated in clear and simple language and grammatical form should also be consistent on a single form. The question is easier to read and understand if the language used is straightforward and simple. The question should be asked in a way that minimizes the answer required by the user, for example, attempt to use a number of yes/no questions instead of a text field response. This, in turn, minimizes the chances for error. However, checks on the responses by the user should be performed when possible to make sure inaccurate and incorrect data is not accepted.

Color

As color is a very powerful visual cue, it should only be used when needed. Colors are very effective for drawing attention and indicating status. Red is usually used for error messages and yellow is usually used for warning messages as in the traffic light. The user can usually determine the nature of the message even before reading it. Color should also be consistent with color associations people have in their jobs and in their culture. Different cultures have commonly accepted meaning for certain colors. In the same system, the use of color should be consistent in meaning and purpose. Inconsistency will cause confusion for the users.[23]

Target Market

Objectives

Definition

In order to properly focus our efforts of development research for this CD-ROM, it was important to realize the audience that would ultimately become the target of information contained on the CD. There are essentially three interest groups having bearing on the CD's info. The first is WPI Admissions, as it is the department that not only decides whether to use the final product or not, but also decides what the ideal characteristics and qualities for a prospective student would be. The other two interest groups directly result from the efforts of admissions and its recruitment campaigns. The obvious group is that of prospective students. However, along with the students, Admissions also targets those people having a direct input and influence into a student's college decision making process.

In beginning to formulate a plan for the development of the content for the CD , that is, what kinds of material portraying various aspects of WPI will be presented, it is necessary to realize that the content of the CD itself should be targeted towards a specific audience. Given the large amount of content available on such a communication media, the intelligent organization and angle taken to display and view this information is of vital importance to the success of the product. This specific audience attracted by the presentation and nature of the displayed material is called the target market. Tailoring the CD towards this target not only gives direction to the project, but also ensures a viable end product.

For this project, the definition of the target market followed natural reasoning through talks with the Admissions department at WPI. The purpose of the CD-ROM is to portray the Institute to prospective students with an interest in the undergraduate fields of study that WPI specializes in, so the target market, inherently, becomes those prospective students. Due to the nature of the college decision, application, and selection processes, the content of the CD would be most effective if targeted towards the most impressionable group with the most time to peruse the contents of it. That group exists as high school juniors. Furthermore, within the generally defined group of high school juniors, WPI's standards for application admission become more refined. Through discussions with Admissions, a chart was developed that outlined exactly the type of student WPI Admissions attempts to target through its recruiting efforts. Because WPI exists as a leading institution in science, engineering and technology, it becomes a mandate to attempt to recruit students of the highest quality and caliber possible. Also through discussions with the Admissions office, it was made clear that, given the nature of the students of WPI and WPI's widespread reputation locally within New England and the East Coast, WPI has also targeted many of its recruitment efforts towards local students.

Description

To make sure that the target market was correctly defined, a number of questions can be asked to ensure that the group selected meets the criteria of both our project and the definition of a target market.[24]

1. Who is the product targeted towards?	The product is targeted towards prospective students interested in fields that WPI specializes in.
2. What is the product being offered to the client?	The client, or user, of the CD is being offered information about WPI that would entice them into either applying to or attending the school.
3. What is the product's defining characteristics?	The product is unique in that it offers a new way of presenting large amounts of information about WPI to those interested in the school.
4. Where is the product offered to the client?	The product is offered by WPI and sent to a prospective student who can then view the product through a number of different venues.
5. Why is the product being used?	The product is mean to promote WPI, its services, advantages, and specialties.
6. What are the reasons behind the use of the product?	The product allows a great deal of information to be contained in a single media device that has exhibited widespread use and approval throughout the personal computing environment.

Having validated the defined target market, it is then possible to determine the optimal message and message delivery, as the content of the CD should be most effective to its target market.[25] For example, a book could be targeted towards specific age groups. Different age groups will purchase the book (the message delivery) for different reasons and in different ways, taking advantage of a sale or store credit, or whatever other quirks might exist in the purchase process. The optimal message is one that emphasizes the specific needs of the target market and eases the acquisition of the needed information by the target market.

Needs

In addition to making an accurate estimation of the target audience, a consideration must be made towards any specific needs of the user. These considerations include both technical aspects of the product design and mannerisms in the content

inclusion and design. The user needs center around providing an interface that is intuitive and has a shallow learning curve, which facilitates the access of information about WPI that interests the student in the proper areas.

Because each user in the target market has varying interests towards factors in the decision of a post-secondary educational institution, a wide area of subjects should be addressed. However, those subjects are dictated by research into the target market. Existing in three forms the research areas are as follows. Background research consisting of a study through admissions of their expectations and ours towards the type of audience the CD should be tailored to. Exploratory research consisting of concise subject studies with direct relevance to the target market. Confirmatory research consisting of specific surveying of members of the target market, tallying those survey efforts, and analyzing the results.

Methodology

Background Research – Admissions Information

The admissions office set very few boundaries for the project, but some characteristics were in fact required by the office The limitations set by the Admissions office were relayed to us in a set of three meetings with the head of Admissions.

Meeting 1:

Discussion focused on two major points in this meeting. The first, was the price of the development of the CD-ROM. The admissions office showed concerns of the project being very costly. The admissions office was assured that this project would be of minimal cost. The admissions office granted a small budget for the project, to cover

whatever minor expenses did occur. The admissions office also put in a stipulation that the project may be developed, but there was a possibility that it would not be distributed to the intended audience. Other key points discussed at this meeting were the overall attitude of the finished product. The project was to product an informative material that was also fun to use. The product had to be interesting and just not a dull display of facts that the prospected market could grab out of a magazine. The user was not to feel they were learning something, but yet they were being entertained.

Meeting 2:

This meeting was set up to discuss the standards WPI uses in picking a student and, furthermore, the type of student WPI pursues. To explain the sort of student admissions looks for, a box was drawn to illustrate.

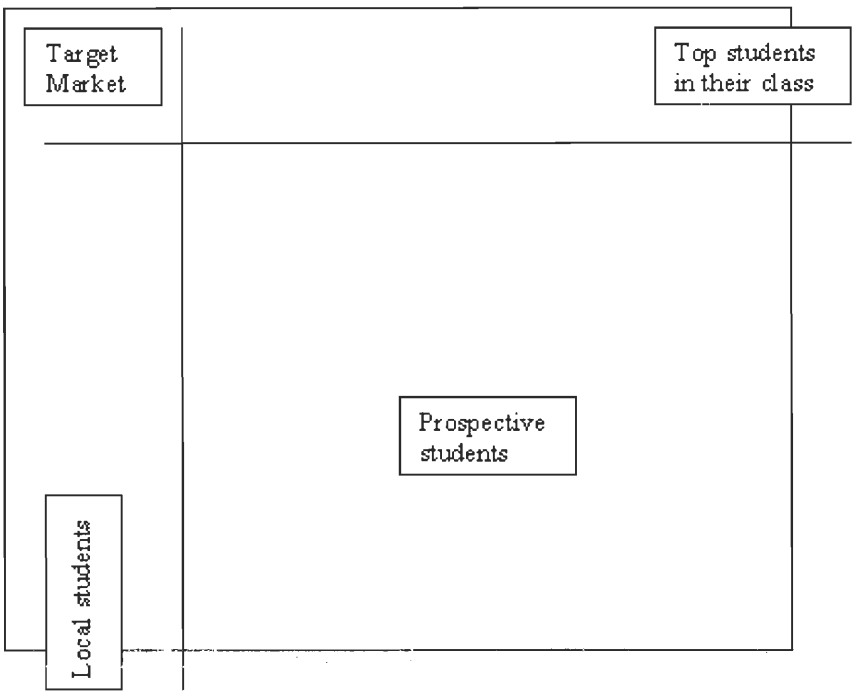

Figure 4 Target Market

The top left corner of the box, seen in figure 4, is the section admissions focuses in on. The first criterion that that admissions consider in choosing which students to solicit is a compilation of the student's past performance with relation to pure placement numbers, such as SAT scores, class rank, GPA, etc. The second criterion is the location. WPI's rationale for selecting prospective students is based upon the premise that WPI is a locally known school within New England. Therefore, if most of the advertisement and effort into recruitment for WPI is conducted locally, a higher percentage of students will apply and eventually be accepted.

Exploratory Research

High School Interviews

The first way of probing into the thought process of high school juniors was to determine which groups had the most influence upon them when attempting to make a decision about either schools to apply to or eventually to attend. One of the most prevalent groups fitting this criterion was a high school guidance counselor. Our project members enlisted the assistance of their respective alma maters, and interviewed each one of their high school guidance counselors. The interview summaries can be viewed in the appendix. In conducting personal interviews with familiar clients, the interview atmosphere was relaxed and the flow of the discussion was natural and loose.

Focus Groups

From the same visits, it was also possible to conduct a number of focus group interviews. A focus group is simply a small group of interview clients, approximately 10-15, made up of members of a target audience. For our purposes, realizing the target of

recruiting efforts from WPI exists as the highest quality generally local students, an Honors Physics class at a local high school less than 20 minutes from WPI seemed an ideal choice. The questions posed to these focus groups were broken into three sections. These questions consisted of, questions relevant to the college search process in general, questions relevant to college materials received and the effectiveness of each, and questions relevant to their reception of the proposed WPI Admissions CD-ROM, the product of this project. The focus group interview summaries can be viewed in the appendix

Confirmatory Research

In addition to these two methods of evaluating the decision process of the intended audience of the product, specific evaluation of students particularly interested in attending WPI were also taken into consideration. Realizing that the best, and easiest, way to evaluate students with an interest in the school was to simply survey those students that actually visited the school, an evaluation method was devised. A survey for prospective students was developed. Before implementing this survey, however, a number of revisions were made.

After drafting an initial example of this survey, seen in the appendix, WPI Admissions was consulted. The Admissions office, however, had already obtained all of the information contained in the top section of this initial survey. Instead, they proposed an alternative research angle – many of the questions posed by the initial survey dealt with strictly numerical analysis of simple factors affecting a student's choice in attending WPI, or any other school for that matter. Admissions personnel were concerned more with an overall feel for the WPI experience. That is, what was a prospective student's

perception about certain issues (the student life, difficulty of classes, etc.) that a student undergoes as an attending undergraduate?

The survey was overhauled and rewritten, and the results can be viewed in the appendix. This survey includes, in the first section, many questions that probe into a student's perception regarding the experience he/she will encounter at WPI as an undergraduate. After analysis, this data yields angles that are utilized in the presentation methods of information content on the CD-ROM.

Results

Data Analysis / Reporting

After distributing our completed surveys and collecting all those that were filled out, for a total of 52, the surveys were compiled into a spreadsheet and a number of statistical functions were performed on the data.

For each question, the mean, median, standard deviation, mode, skew, and variance were computed for the values tabulated. The completed data table, with the calculated computations regarding statistical analysis, can be seen in the appendix. The heading of the table represents key words from each question on the survey, with a numerical representation of the response from a specific survey (numbered on the left) below each heading.

Question	Average	Mode	Standard Deviation
What the students are like	2.5	2	0.9
Social life on campus	2.1	2	0.8
Appearance of campus	2.1	2	1.0
Course selection	1.8	1	1.0
Course difficulty	2.4	3	1.1
Placement numbers	2.8	3	1.2
Athletic opportunities	2.8	3	1.2
Recreational facilities	2.4	2	1.1
Academic Facilities	1.9	1	0.9

Table 1 Section 1 – Rating Importance

Choice	Average	Mode	Standard Deviation
Printed Brochure	1.7	1	1.0
VHS Videotape	2.5	2	1.2
PC CD-ROM	3.5	4	1.2
E-mail	3.7	4	1.2
Phone Contact	3.6	5	1.3

Table 2 Section 2 – Ranking Preference

Question	Average	Median	Mode	Standard Deviation
Would a CD-ROM containing info about the above factors be beneficial in making your final college decision?	1.3	1	1	0.5
Would you be able to utilize a CD-ROM?	1.25	1	1	0.4
Is there a computer with a CD-ROM in your house?	1.25	1	1	0.4
Is there a place where you could view a CD-ROM outside of your home?	1.4	1	1	0.5

Table 3 Section 3 – Yes / No Choices

Interpretation

Recalling the format of our final survey from appendix, it can be seen that the first set of nine questions had five possible choices, numbered 1 to 5. The second set, a set of five choices, were set up to be ranked, one rank per choice. The third set of questions was comprised of four yes/no questions, with a 1 representing a yes answer and a 2

representing a no answer. The spreadsheet reflects this, with the answer given recorded as the data entry. The first statistical value calculated, the mean, gives the average response of each question. The second, the standard deviation, gives a measure of how widely the values are dispersed from the mean. The median is the number in the middle of a set of numbers; that is, half the numbers have values that are greater than the median, and half have values that are less. Mode returns the most frequently occurring, or repetitive, value in an array or range of data. Like Median, Mode is a location measure. Skewness characterizes the degree of asymmetry of a distribution around its mean. Positive skewness indicates a distribution with an asymmetric tail extending toward more positive values. Negative skewness indicates a distribution with an asymmetric tail extending toward more negative values. Finally, the variance gives a measure of spread of the standard deviation of the data values. A table of the questions and results from each of the statistical functions is shown below, with an explanation of the results following each table.

In the first section, as a reminder, the different factors were rated on a 1 to 5 scale, with 1 representing a strong agreement of the importance of the particular factor and 5 being a strong disagreement with the particular factor. After calculating the statistical functions on each of the factor results, it can be seen in the above table that the most important factor was the availability and selection of courses, carrying an average rating of 1.8 (and a most popular response, or mode, of 1). The only other factor with an average below 2.0 is the academic facilities, yielding an average of 1.9 (and a mode of 1 also). Appearance of the campus was the next highest response, with an average of 2.1 and a mode of 2. The social life on campus carried an average of 2.1 and a mode of 2,

making it the 4th most important factor, followed by the difficulty of the courses averaging 2.4 and a mode of 3. The recreational facilities followed with an average of 2.4 and a mode of 2, but the overall student population was only slightly higher with an average of 2.5 and a mode of 2. This leaves athletic opportunities, such as intramural, club sports, and varsity sports, with an average of 2.8 and a mode of 3 and placement numbers, GPA, SAT scores, etc., closely behind with an average of 2.8 and a mode of 3.

In looking at the median of the factors, all but the two with averages above 2.8 have values of 2 for the median. Most exhibited low skew values except recreational facilities and campus appearance, indicating that the most variation and spread of the responses with respect to symmetry in those responses occurred in these two factors. Also in relation to spread, standard deviations were, for the most part, relatively uniform across the questions, varying from approximately 0.9 to 1.2, meaning that a majority of the responses were within 1 of the mean. This indicates that some questions yielded a good variety of answers, giving a greater variance. This also means that the average value and the mode differ quite a bit, while others exhibited a small variety of answers, giving a lesser variance and showing that the average value and the mode do not differ by a large value.

In the second section, again as a reminder, the person was asked to define the method in which he or she preferred to receive information about a college. The different choices were ranked, with a rank of 1 being most preferred and a rank of 5 being the least preferred. The most preferred method, that is, the one with the lowest average, is a printed brochure, with a value of 1.7, also yielding a mode of 1. Next came VHS videotape with an average value of 2.5 and a mode of 2. A CD-ROM came next with

values of 3.5, and 4 for the mean, and mode respectively followed closely by phone contact, with values of 3.6 and 5. The least preferred method was email, yielding an average value of 3.7 and a mode of 4. In this section, negative skew values are observed, meaning that the spread of the values tended towards a lower value, or a higher preference, such as 1 or 2, rather than a higher value, or a lower preference, such as 3 or 4. The standard deviations of all the choices are close in value.

In the third and final section of the survey, a set of four questions was listed, each with a possible yes or no answer. In tabulating the data, a yes was represented with 1 and a no was represented with a 2. This means that an average below 1.5 indicates a higher percentage of yes answers while an average above 1.5 indicates a higher percentage of no answers. In each case, the average of the answers was below 1.5. The median and mode of each was 1, and both the standard deviation and variance values did not have a wide spread of values.

From the previous tables, it can be seen which questions and choices have the most impact upon a student's decision in not only choosing a college, but also the important factors of a prospective school that attract a student. These results dictate what kinds of content and extent of information is included on the final CD-ROM distributed to prospective students from WPI admissions, as the choices with the best responses will directly relate to the most attractive features of a school. By emphasizing those features in relation to WPI, the student is more likely to place a greater consideration on WPI as a college choice.

Technical Development

Choice of Platform (HTML)

Choosing the platform to develop the CD-ROM on was not as trivial a decision as may seem. There were a few main criteria that the platform needed to meet in order for it to be usable. The most important criterion was the support of the platform. It would be useless for the platform to be dependent on an operating environment that the user would not have easy access to. The second criterion was that the platform needed the ability to help fulfill the goals set out for this project. It needed the ability to incorporate sounds, images, and moving video into the program easily. The third criterion was that the group needed to have previous knowledge of the development environment. The last criterion that was taken into consideration was the ability of the system to develop an interface the user would be readily familiar with. The possible development environment options were nearly limitless.

Platform Support

Determined earlier the PC was the most common computing device users had access to. Therefor the CD-ROM had to be able to run on a PC. This criterion still left many options open to us for choice of a development platform. Microsoft Visual Basic, Microsoft Visual C++, Macromedia Flash, and HTML JavaScript were the forerunners in the race. All these development platforms are supported on the PC, and mostly available to the group for use.

The Ability to Incorporate Multimedia

Multimedia is the heart of the CD-ROM, and needed to be able to be incorporated and used by the platform with very little hassle. MS Visual C++ was the only Development environment that lacked in this criterion. MS C++ does have the ability to incorporate multimedia, but not as easily and readily as MS Visual Basic, Macromedia Flash, and HTML script. Due to these points we decided to remove MS C++ from the possible development environments.

Previous Knowledge

Due to time constraints we were unable to learn and familiarize ourselves with a new development environment. The expertise in different environments ranged greatly. The familiarity with Macromedia Flash was nearly none, and therefor not suitable for our needs. Every member of the group had at least familiarity or expertise with HTML Scripts, and MS Visual Basic.

Interface Design

This criterion allowed us to pick the platform that would allow us to build an interface that would be the most intuitive. One of the main goals of HCI is to design a system that minimizes user learning time. One possible way to shorten the user learning period, discussed in the section on HCI design, is to use interface schemes the users is familiar with. If the application where to be developed with MS Visual Basic, a new interface would need to be designed. The new design would cause the user to take time to learn the interface or not use the product. The results produced from designing a new user interface, that the user would not be familiar with, are not ideal. The option of

using HTML scripts yields an interface that most computer users are familiar with. HTML scripts are viewed through a web browser, which provides an interface more people are becoming learned in each day. A large percentage of Americans are familiar with the web browser, because they currently use it to "surf" the web. Thus using HTML scripts to develop the application would lead to an interface that would take very little user time to learn and become extremely efficient with.

Decision and Reasoning on Development Platform Choice

The choice of HTML scripts for the development platform was an easy one to make. HTML scripting was the only option to meet every criterion. HTML scripts offer the flexibility desired, and the multimedia power needed for this application. HTML scripts also allow the development group to focus on design aspects, instead of learning a new development platform. When the user learning time considerations are added into the equation the decision is made easy. Of the platforms that were considered for this application, HTML scripts offer the most possibilities, and was our choice for the development platform.

Content Design

Overall Theme

The overall theme in this product is to display WPI as a fun exciting place to attend. By portraying the school in this manner it will help accomplish two goals. The first objective is to get the user excited about the school and to spark an interest that will cause the student to want to learn more about the school. Secondly, the exciting format of the CD will maintain the interest of the user, the longer they view the CD, the more

information they will attain about WPI and its programs. The justification for the playful theme was also supported through discussions with the Admissions department. Many of the materials that the Admissions department uses portrays WPI in this manner and have been successful.

CD-ROM Content Decision

Through market research complied from focus groups comprised of high school guidance counselors, high school students and their parents, major decisions on the content of the CD-ROM were made. Surveys that are included in the appendix, provided information regarding the importance of specific aspects of WPI's academic and social environments. Regarding these topics, the data produced by the focus groups failed to show any topic to be more important than another when making a decision about higher education. This can be attributed to the different needs and interests of the individuals studied.

A general presentation of WPI's environment including academics, social events, athletics, and other opportunities, was premise for the CD-ROM. The CD-ROM contains concise information about various subjects, which the user can then view to gain a general understanding of a particular subject. The CD-ROM also contains contacts and other links, which the user can utilize to gain more in depth information. Some of the information presented is included in the following list.

- Global Opportunities Program
- The WPI Plan
- Available Majors
- Varsity/Club Athletics
- Worcester
- Admissions Information
- Campus Resources
- Residential Life
- Campus Activities
- WPI Traditions

Content Layout/Hierarchy

Based on research complied about human computer interaction, discussed in the background, the decisions were made on page layout and hierarchy. These aspects of design are very important because without a good "feel" the CD-ROM would be difficult to use. The ease at which the user can navigate the information contained in the CD-ROM has a direct affect on the impact of the information they receive. WPI's reputation is also affected by any impression that the CD-ROM has on the user. The CD-ROM was designed for overall efficiency and ease of use. In order to achieve this, important HCI principles had to be followed. HCI design principles used in the product can be seen in following table.

HCI Principle	Applicable to this Project	Example of Use
1. Familiarity with interface	Yes	Button Location
2. Few Steps	Yes	Depth of Navigation
3. Clear Directions	Yes	Navigation Techniques
4. User Control	Yes	Self-Navigating
5. Fill-in Forms	No	
6. Concise Information	Yes	Short, clear text
7. Menu Interface	Yes	List of Words
8. Color Associations	Yes	School Colors

Table 4 Applied HCI Principles

To keep the navigation method consistent the CD-ROM contains links that appear as buttons on the same area of each page. It is also important that the user not get lost or confused in their navigation of the CD-ROM the hierarchy was limited to a minimal number of levels. The ability to view only the desired information of the user is also an important feature that is accomplished through the use of buttons and links. Where text is used on the CD-ROM it is kept clear as concise as to not confuse or bore the user. The menu interface is a short list of subject keywords for easy viewing and navigation. Also

incorporated with the layout are specific colors, which break up the page and are used to bring the users attention to certain sections. The HCI design principles that were used can be seen in the following screen grabs of the pages on the CD-ROM.

Music Development

In addition to the visual aspects developed for this project, a number of audio tracks were added as well. These tracks coincide with each of the choices for the main menu page. Once a user clicks on a choice and is brought to the submenu under one of these choices, background music is played. This music is entirely original and was developed using an MC-505 Groovebox by Roland Corporation. This device plays a basic rhythm with a bass track and a drum track. Depending on the particular music "patch," or combination of artificial instruments and voicings, a number of other tracks are also available. These instruments range from guitars to brass instruments to turntables and other combinations. A number of different styles were picked and 30-second clips were recorded of each style. The output of the MC-505 was input into the sound card of a computer, and the clip was digitally recorded (using the Wave Studio software package by Creative Labs). Each clip is timed and edited using the same software package so that when the clip is repeated, it loops with no discernable skip. This way, the music can be indefinitely played behind one of the sub pages displayed to the user.

Manufacture/Creation/Coding of the CD-ROM

Choice of Creation Software (FrontPage98)

In order to make creation as efficient as possible a web page authoring program, Microsoft FrontPage98, was implemented. FrontPage98 is a PC based program which one can use to create and manage web pages and web sites. It includes and editor for drag and drop creation of pages as well as a graphical overview of the pages and the hyperlinks between them. Overall FrontPage made the creation process and management much easier with built in commonly used tools and tips.

HTML Technology Features Implemented

HTML, or Hypertext Markup Language, is a script-based language. This means that each file comprising the information contained on the CD-ROM is basically text information, as would be seen in a printed page of text with formatting code surrounding it. This code specifies whether the text is italic, whether the information is in tabular format, what color the text is, what images are used in the foreground or background, and many other aspects of the presentation of the information.

However, HTML is limited to just what the acronym implies - "marking up", or formatting text. If the author of the page wants to manipulate some of the page objects further than visually (for example, display a certain image or text aspect of a page depending on where the mouse cursor is on a page), some external program or language must be used.

For this project, JavaScript was also incorporated into certain elements of the pages. For example, in the main page, when the user hovers the mouse over the text

elements in the left side of the page, the right side of the page displays appropriate elements. This is done by a short JavaScript program that keeps track of the position of the cursor in relation to screen elements, then changes the right hand side of the screen to attract the user's attention and to give more information about the choice the cursor is hovering over.

Burning of the CD-ROM

The physical creation of the CD-ROM is actually a simple process. It first involves collecting all of the appropriate files, web pages and pictures, on a computer equipped with a CD-ROM recorder. Using software to transfer the information to CD-ROM permanently a CD can be created in about twenty-five minutes using a 4x speed CD-ROM recorder. Once the CD-ROM is "burned" it becomes read only and no more information can be added or subtracted. It is important therefore to test the first few copies of the end product to ensure that everything is functioning properly before a CD with errors or other problems is shipped to a user. All the computer technology that is needed for the CD "burning" process is available in WPI's College Computer Center and is easy to use for anyone that is familiar with personal computers. Another method that could be used is the creation of multiple copies by a third party manufacturing company. Such a company would still require an initial copy to be made on a recordable CD-ROM by WPI but subsequent CD-ROMs manufactured by the company would be high quality masters, which could be ordered in bulk complete with labels and jewel cases. This method would cost more initially but may be desired due to the ability of the company to manufacture many CD-ROMs at once in a relatively short amount of time.

Implementation

Distribution

There are three main methods of distribution that have been considered with the end product. The first is to ship a copy to many high school guidance counselors. The second method is to ship the CD as a complement to other media that is sent to prospective students. The third choice is to ship the CD to only those who request it through a mail back card.

Through our research we have found that the guidance counselor is usually the first person that recommends schools to students. Following this premise it would be advantageous to send copies to many high schools in an attempt to persuade students to take a closer look at WPI and perhaps apply. The cost of a copy of a CD is relatively small, in the area of one dollar, so this is a very cost-effective method of distribution.

With the growing number of personal computers found in today's homes another possibility is to directly ship the CD in complement to other information regarding WPI to a prospective student's home. This method may grab a students attention far before they have received any pertinent information from other school and make a great first impression. A student may then "ask around" and decide whether applying and attending WPI is in their future.

A third possibility is that of distribution to specific students who request the CD through a mail back card. WPI would sent a first mailing of information at the end of which would contain a post card that can be mailed back to the school requesting more information. This method would be the most cost effective due to the fact that once the card is mailed back the student is assumed to have some interest in WPI and may choose

to apply and then attend. By not going with a blind mailing WPI would save incredibly on postage and copy costs.

Packaging

Packaging for this product should be relatively small. All that is really needed is a CD cover/case, which can be in the form of a paper or plastic envelope. This is primarily to prevent the CD-ROM from being scratched when in transport and when not in use. This is important because if the CD does get scratched data loss and errors may occur which can cause a bad outlook of WPI. There is no need for a manual or any additional directions due to the intuitive nature of the CD-ROM. The target market calls for a technically proficient student therefore that type of person should have no trouble with how to use the CD-ROM. As a backup though some brief directions may be added to the packaging material in the form of a couple simple sentences describing initial steps. Often included on the package, contact information for WPI, such as phone numbers and web sites may be helpful for end users. The Admissions office would choose the graphics and colors if the CD-ROM is to be implemented possibly keeping with WPI's art scheme for that particular information distribution.

Costs

The cost to the Admissions office is relatively small due to the fact that the CD was created as part of an IQP and not by an outside company. The CDs could be made on a per need basis, with no ordering of large quantity manufactured CDs, easily with the computer technology that WPI has. The main cost is that of blank CD-ROMS. This can be as low eighty cents for generic medium without any graphics or writing. It is better

for presentation however to use a printed CD-ROM which shows clearly the contents and some general information. Printed CD-ROMs can be either manufactured by a third party or constructed by the Admissions office by using labeling software. The latter may be a better choice because it allows for changing of the label's graphics and writing quickly. If there are any changes to the CD-ROM, possibly from year to year, that require changing the label and it would be better not to lock down to only one label design.

Future

The nature of this CD-ROM makes it very easy to change and in fact should be updated when new or changed information becomes available. This is one of the reasons why we made the CD-ROM date specific. Besides the ability to be more concise when reporting information like tuition, the ability to change the CD can yield better results more easily than having to go through a major manufacturing process each time a new CD is to be implemented. New web based technology can also be added as it becomes available that may enhance the experience of the end user. As the WPI community changes so can the informative CD-ROM, adapting to the ever changing area of technology and that of higher education.

Conclusions

Lessons Learned

Throughout this project there were many areas that could have been handled much more easily and other aspects that should have been looked at. Such as in the case of the research surveys which could have studied larger focus groups. Another advantage would have been the input of current WPI freshmen. From them the project group could have asked what influenced their decision to attend WPI as opposed to other competing technical universities.

In the collection of information that is the content of the CD-ROM, the project group could have worked more closely with the individual departments of WPI to obtain more focused input. Had the information on the CD-ROM been determined one year prior to its creation, the project group would have been able to identify important campus activities and events to include photographs and news clippings.

Ideas for Future

Inherent in its very nature this project has many possibilities for the future, some of which were explained earlier. Also possible, however is the extension of this project through more research and development. Technology is never static. To show its supremacy in this field WPI should continue to adapt this product to make it even more successful. This can be accomplished through other IQPs or through an outside firm. IQPs have advantages such as cost, first hand knowledge, and other aspects, that only students can bring to a project. Either way, to fully benefit from the work that has been

completed, further time should be spent changing, revising, and advancing this product to bring the best possible students and WPI together.

[1] WPI 1998-99 Undergraduate Catalog
[2] Computer Desktop Encyclopedia
[3] Computer Desktop Encyclopedia
[4] Computer Desktop Encyclopedia
[5] Computer Desktop Encyclopedia
[6] Computer Desktop Encyclopedia
[7] Mayhew
[8] Mayhew
[9] Mayhew
[10] Bodker
[11] Mayhew
[12] Mayhew
[13] Mayhew
[14] Preece
[15] Preece
[16] Mayhew
[17] Mayhew
[18] Mayhew
[19] Mayhew
[20] Mayhew
[21] Mayhew
[22] Mayhew
[23] Preece
[24] http://www.entis.com/projects/cyberpresence/target.html
[25] http://www.entis.com/projects/cyberspace/solutions.html

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WPI Undergraduate Catalog 1998-99

WPI Admission Department Brochures

Appendix

WPI Admissions CD ROM Background Research:

Preliminary Interviews

Conducted by:	Chris Nichols
Location:	Grafton High School
Client(s):	Susan Milewski, GHS student body guidance counselor
Date:	February 2, 1998
Time:	9:00am

The purpose of this interview was to gain a feel for the admissions process for high school students interested in pursuing an education at the post-secondary level. Our group decided that an interview with the source of most college searches, a high-school guidance counselor, would be appropriate. Due to the location and accessibility of my high school and its faculty members, I contacted my high-school guidance counselor for an interview. The questions (and a paraphrase of the responses) follow:

General Admissions questions:

1. *Could you briefly describe your process in helping a student to select a range of schools?*

   First, the student is introduced to a computer program in the guidance office which, through a series of questions, focuses a student's interests. Through those interests, it then invokes another question series, and through the results of both question series, presents a possible list of schools.

2. *Is there any way that you "categorize" a student, in order to help narrow his/her interests?*

   Not particularly – a student generally already has some idea of what areas they will pursue in a post-secondary level.

3. *What types of areas are **students** usually concerned with in a prospective school?*

   Location, size of the school, the quality of student life, post-grad employment opportunities, and co-op and internship opportunities are the most popular criteria in narrowing the college search. Also very prevalent (which probably shouldn't be, but frequently is) remains the cost of tuition and room/board.

4. *What types of areas are **parents** usually concerned with in a prospective school?*

   Generally, parents break down schools into two categories – state schools and private institutions. Unfortunately, parents usually falsely assume that state schools are always cheaper, which is unfortunate. Private institutions have many advantages, and usually are able to offer better financial aid packages.

5. *What types of areas usually discourage a student from pursuing in a prospective school?*

   The cost of tuition and room/board is the foremost concern, with programming/course and major availability a close second.

6. *Are there any stereotypes of a school that consciously affect your guide to a student? For example?*

WPI was the quickest example – it's generally thought of as a strictly Math/Science school but in actuality, WPI offers a wide variety of technical majors that have a minimal math/science requirement.

7. *Are there any types of factors that would draw you away from suggesting a prospective school to a student?*

   The overall environment of the school is usually one of the major considerations. Some students just will never function to their capacity in a big school or in the city, so his/her personality and preferred work environment is usually considered.

8. *What are some of the most useful materials that schools provide?*

   From the perspective of the admissions office, the course catalog and other materials with just pure facts and figures are usually the most used. With recent connectivity to the internet, a school's website is becoming more and more a resource as well.

Media-specific questions:

9. *Do you see an influence of the Internet or computers in the school search or selection process?*

   Absolutely – students to a lot of surfing at home to narrow their school search, especially with websites built specifically for that purpose.

10. Have you seen any CD-ROM type media from other schools?

Yes – Tulane has one, and there are a number of cd's giving a very general overview of a number of schools at once.

11. What kinds of information would you expect to be included with it?

The pure statistical information, course listings, everything listed in the current information. In addition, possibly information about the quality of student life, activities that the student can become involved with, the general environment of the school, etc. Lots of diversity within the information fields.

12. What do you think would catch a student's attention most successfully?

A presentation that gets away from the normal presentations we always see from schools. Maybe "a day in the life of" type thing.

WPI specific questions:

13. Do you have any stereotypes of WPI?

It's a Math/Science school.

14. What kind of student would you suggest WPI to?

A student strong in the traditional engineering backgrounds (math, science), but also one who has interest in technical fields not strictly engineering-related.

15. How do you think a CD could change a student's perception of WPI?

It could clear up some of the grey areas that are always associated with WPI – life in Worcester, life on campus, the student gender ratios, and any other misconceptions that students generally have.

WPI Admissions CD ROM Background Research:

Preliminary Focus Group Interviews

Conducted by:	Chris Nichols
Location:	Grafton High School
Client(s):	Senior Honors Physics class
Date:	February 3, 1998
Time:	8:30am

The purpose of this interview was to gain an understanding of the factors that influence a student the most in applying to a post-secondary level education institution. Our group decided that it was necessary to observe the responses of a focus group to questions regarding college searches and selections processes. Due to the location and accessibility of my high school and my rapport with former instructors, I contacted one of the science teachers employed at my high school. I arranged a meeting with the Honors Physics class, and the questions and responses (many of which are similar to a prior interview with one of the GHS guidance counselors) follow:

General Admissions questions:

16. Could you briefly describe your process in selecting a range of schools?

Students use a computer program in the guidance office which, through a series of questions, focuses a student's interests. Through those interests, it then invokes

another question series, and through the results of both question series, presents a possible list of schools.

17. *What types of areas are **students** usually concerned with in a prospective school?*

    Location, size of the school, the number of students, the quality of student life, post-grad employment opportunities, and co-op and internship opportunities are the most popular criteria in narrowing the college search. Also very prevalent (which probably shouldn't be, but frequently is) remains the cost of tuition and room/board.

18. *What types of areas are **parents** usually concerned with in a prospective school?*

    Generally, parents break down schools into two categories – state schools and private institutions. Unfortunately, parents mainly look at prices, and usually falsely assume that state schools are always cheaper, which is unfortunate. Private institutions have many advantages, and usually are able to offer better financial aid packages, which is another main concern among parents.

19. *What types of areas usually discourage a student from pursuing in a prospective school?*

    The general attitude of the students currently attending the school is usually a good indicator – if the current undergrads don't seem to enjoy being there, it reflects onto prospective students.

20. *Are there any stereotypes of a school that consciously affect your guide to a student? For example?*

21. *Are there any types of factors that would draw you away from a school?*

When going to visit a school, it's important for the tours and programs offered to prospective students be very organized and run well. If a school can't manage to recruit students, how is it expected to teach them?

22. *What are some of the most useful materials that schools provide?*

The factor that all of the students seemed to think important was word-of-mouth. Most of the students in this class plan to attend schools that have been spoken highly of by a friend or family member.

Media-specific questions:

23. *Do you see an influence of the Internet or computers in the school search or selection process?*

Absolutely – students to a lot of surfing at home to narrow their school search, especially with websites built specifically for that purpose.

24. *How would a CD-ROM be helpful?*

Ideas suggested here included campus tours, student comments, pure statistics, job percentages (co-op and post-grad), location environment information (what's it like around Worcester?), etc.

25. *What do you think should be included?*

Videos, information about different majors (not all traditional), lists of what you would need to submit, lists of what WPI requires for admission, the school codes for SAT's or applications, information about extracurricular activities (clubs, sports – Intramural and varsity – programming available, etc.

WPI specific questions:

26. *Do you have any stereotypes of WPI?*

It's a Math/Science school.

27. *How do you think a CD could change a student's perception of WPI?*

It could clear up some of the grey areas that are always associated with WPI – life in Worcester, life on campus, the student gender ratios, and any other misconceptions that students generally have.

WPI Admissions CD ROM Background Research:

Preliminary Focus Group Interviews

Conducted by:	Bryan McFeeters
Location:	Wilmington High School
Client(s):	Gino DiSarcina, WHS student body guidance counselor
Date:	April 8th , 1998
Time:	9:30am

The purpose of this interview was to gain a feel for the admissions process for high school students interested in pursuing an education at the post-secondary level. Our

group decided that an interview with the source of most college searches, a high-school guidance counselor, would be appropriate. Due to the location and accessibility of my high school and its faculty members, I contacted my high-school guidance counselor for an interview. The questions (and a paraphrase of the responses) follow:

General Admissions questions:

28. Could you briefly describe your process in helping a student to select a range of schools?

We provide a booklet which outlines the selection and application processes.

ed. A copy of said media was obtained.

*29. What types of areas are **students** usually concerned with in a prospective school?*

Job opportunities that are available after graduation.

*30. What types of areas are **parents** usually concerned with in a prospective school?*

Parents are most concerned with the cost of secondary education.

31. What types of areas usually discourage a student from pursuing in a prospective school?

Location can discourage. Promotion of graduates used in commercials and other media are great ways to promote schools.

32. *What are some of the most useful materials that schools provide?*

When materials are kept up to date printed media is very useful.

Media-specific questions:

33. *Do you see an influence of the Internet or computers in the school search or selection process?*

Not internet but computers used to use programs to narrow search for schools.

34. *Have you seen any CD-ROM type media from other schools?*

No.

35. *What kinds of information would you expect to be included with it?*

The pure statistical information, course listings, everything listed in the current information. In addition, possibly information about the quality of student life, activities that the student can become involved with, the general environment of the school, etc. Lots of diversity within the information fields.

36. *What do you think would catch a student's attention most successfully?*

It has to be cool. Like Celtic's media guide

WPI specific questions:

37. *Do you have any stereotypes of WPI?*

Not particularly.

High School Students, We Need Your Help!

In order to enhance WPI's recruiting process and help make your college search decision easier, we are asking for a few minutes of your time to complete this survey using your experiences.

As part of your choice of University to attend, please rate the following factors on a scale of 1 to 5 (5 being very important and 1 being least important).

Tuition Cost	1	2	3	4	5
School Size	1	2	3	4	5
Location	1	2	3	4	5
Extracurricular Activities	1	2	3	4	5
Student Ratios	1	2	3	4	5
Available Majors	1	2	3	4	5
Financial Aid	1	2	3	4	5
Surrounding Community	1	2	3	4	5
Employment Opportunities	1	2	3	4	5
Computer Resources	1	2	3	4	5
Average Class Size	1	2	3	4	5
Professor to Student Ratio	1	2	3	4	5
Overseas Opportunities	1	2	3	4	5

Additional Questions

How would your prefer to receive information about a University? (Please rank the following in order of preference)

Printed Brochure _____
VHS Videotape _____
PC Cd-ROM _____

During your college search, if given a CD-ROM with this information would you have been able to utilize it? Yes No

Does your household own a computer? Yes No

Are their any factors important to you in your college search that are not listed above? Yes No

If yes, what? _____
_____
_____
_____
_____

Prospective Student Survey

Please rate the following factors on a scale of 1 to 5, 5 being very important and 1 being least important.

Tuition Cost	1	2	3	4	5
School Size	1	2	3	4	5
Location	1	2	3	4	5
Extracurricular Activities	1	2	3	4	5
Student Ratios	1	2	3	4	5
Available Majors	1	2	3	4	5
Financial Aid	1	2	3	4	5
Surrounding Community	1	2	3	4	5
Employment Opportunities	1	2	3	4	5
Computer Resources	1	2	3	4	5
Average Class Size	1	2	3	4	5
Professor to Student Ratio	1	2	3	4	5
Overseas Opportunities	1	2	3	4	5

Additional Questions

Would a CD-ROM containing this information be beneficial to making your final decision in a college?	Yes	No
If given a CD-ROM with this information, would you be able to utilize it?	Yes	No
Does your household own a computer?	Yes	No
Is there anything that you'd like to know about either WPI, or a college in general, that usually isn't listed in any of the advertising materials?	Yes	No

If so, what? _____

_____

_____

_____

_____

Prospective Students, we need your help!

In order to enhance WPI's recruiting process and help make your college search decision easier, we are asking for a few minutes of your time to complete this survey drawing upon your own feelings and experiences. Thank you!

Please rate the importance of the following factors relative to your college selection criteria, with 1 as strongly agreeing that the factor was important in a decision and 5 as strongly disagreeing that the factor was important in a decision.

	Strongly Agree		Agree		Strongly Disagree
What the students are like	1	2	3	4	5
The social life on campus	1	2	3	4	5
Appearance of campus	1	2	3	4	5
Course selection	1	2	3	4	5
Course Difficulty (how hard do you think the work is here?)	1	2	3	4	5
Placement Numbers (i.e. SAT, GPA, etc.)	1	2	3	4	5
Athletic opportunities (varsity / intramural sports)	1	2	3	4	5
Recreational facilities (i.e. Campus Centers, sports facilities)	1	2	3	4	5
Academic facilities	1	2	3	4	5

How would your prefer to receive information about a University?

(Please rank the following in order of preference, 1 being most preferred

and 5 being least preferred)

Printed Brochure _____
VHS Videotape _____
PC CD-ROM _____
E-mail _____
Phone Contact _____

Would a CD-ROM containing information about the above factors be beneficial to making your final college decision? Yes No

If given a CD-ROM with this information, would you be able to utilize it? Yes No

Is there a computer with a CD-ROM drive in your house? Yes No

Is there anything that you'd like to know about WPI, or any other college you might consider, that usually isn't listed in any of the advertising materials?

If there is no computer in your house, is there another place, such as school, where you could use a WPI CD-ROM? Yes No

If yes, what? _____
_____
_____

Freshmen Student Survey

Please rate the following factors on a scale of 1 to 5, 5 being very important and 1 being least important.

Tuition Cost	1	2	3	4	5
School Size	1	2	3	4	5
Location	1	2	3	4	5
Extracurricular Activities	1	2	3	4	5
Student Ratios	1	2	3	4	5
Available Majors	1	2	3	4	5
Financial Aid	1	2	3	4	5
Surrounding Community	1	2	3	4	5
Employment Opportunities	1	2	3	4	5
Computer Resources	1	2	3	4	5
Average Class Size	1	2	3	4	5
Professor to Student Ratio	1	2	3	4	5
Overseas Opportunities	1	2	3	4	5

Additional Questions

Would a CD-ROM containing this information have been useful in your college decision? Yes No

During your college search, if given a CD-ROM with this information would you have been able to utilize it? Yes No

Does your household own a computer? Yes No

After attending school for a year, is there anything apparent now that would have interested you more in WPI? Yes No

If so, what? _____

_____

_____

_____

_____

Freshmen Students, We Need Your Help!

In order to enhance WPI's recruiting process and help make your college search decision easier, we are asking for a few minutes of your time to complete this survey using your experiences.

As part of your choice of University to attend, please rate the following factors on a scale of 1 to 5 (5 being very important and 1 being least important).

Tuition Cost	1	2	3	4	5
School Size	1	2	3	4	5
Location	1	2	3	4	5
Extracurricular Activities	1	2	3	4	5
Student Ratios	1	2	3	4	5
Available Majors	1	2	3	4	5
Financial Aid	1	2	3	4	5
Surrounding Community	1	2	3	4	5
Employment Opportunities	1	2	3	4	5
Computer Resources	1	2	3	4	5
Average Class Size	1	2	3	4	5
Professor to Student Ratio	1	2	3	4	5
Overseas Opportunities	1	2	3	4	5

Additional Questions

How would your prefer to receive information about a University? (Please rank the following in order of preference)

Printed Brochure _____
VHS Videotape _____
PC Cd-ROM _____

During your college search, if given a CD-ROM with this information would you have been able to utilize it? Yes No

Does your household own a computer? Yes No

Are their any factors important to you in your college search that are not listed above? Yes No

If yes, what? _____

_____

_____

_____

_____