Dream Home Multimedia Advertising

By,

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Dissertation submitted in partial fulfillment of
the requirements for the
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Certification of FYP Final Draft Submission

Herewith I, Md. Reza Huzainie B. Md. Yussof, ID: 566, certify that I am responsible for the work submitted in this project, and I have done all the modifications according to my supervisor's advice.

Thank you.

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CERTIFICATION OF APPROVAL

Dream Home Multimedia Advertising

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A Final Report submitted to the
Information System Programme
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(INFORMATION SYSTEM)

Approved by,

( )

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

May 2003

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

MD. REZA HUZAINIE B. MD.YUSSOF

ABSTRACT

Currently, means of presenting the selling house are by on site visits. After the emergence of the computer graphics, software technologies, Internet, and interactive multimedia tools, many developer companies have ventured in the e-business to show to the consumers the line of house, which they are selling. The objective of this project is to develop a prototype as the basis of inviting the audience to interactively participate in the choosing their desired house by working with a virtual interior view of each segments of the house, 360 degree image of each rooms in the house, the interactive location map of the house, considering the price range and the type of the house. The scope of study of this project will be focused on the customer's identifications on choosing the selling house, multimedia interactive advertising application, in which the product should meet the human-computer interaction, in this case, customers-application friendliness. In this project, System Development Life Cycle (SDLC) Methodology is used since it covers all the phase in developing the interactive advertising application, including the testing phase, which customers will use the testing application in order to measure the user friendliness of the application. The "score" or the findings of the project are determined from the customers' satisfaction and understanding during using the testing or prototype of the application. Most of the user satisfied with the application due to the reasons that they do not have to go to the advertised house's location, the application itself have already help them in decision making, and the application includes all the data that customers might need to know.

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- Kemajuan Emax Sdn. Bhd. (Venice Of Perak)
- Antap Enterprise Sdn. Bhd. (Taman Kledang Emas)

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CHAPTER 1

INTRODUCTION

The research project will basically help the house developer to advertise their selling properties. The application product will consists all of important interactive multimedia elements being discussed more in next progress report, which will perform interactive graphics such as 3-D visualization effects, transformation, movements, audio effects and animations.

The main part of this project while developing this interactive multimedia product is the study on Human-Computer Interaction. Since the product is mainly produce for the user to interact with it, this project will cover the components of HCI in developing the product, HCI Design Process Methodology will be used, interaction device proposed (input and output) and the most important things, the interaction frameworks, ergonomics of the products, direct manipulation from the users to the products, and users interaction styles.

The past decade has witnessed the development of information and communication technologies that enable easy and rapid interaction between customer and advertiser. As a result, advertisers are increasingly relying on various modes of interactive technology to advertise and promote their products and services. A new genre of advertising and marketing communications agencies has emerged, the interactive agency, even as more traditional advertising agencies have embraced interactive technologies. Expenditures for online advertising, only one form of interactive communication, doubled from 1998 to 1999 and are expected to reach $ 21 billion by 2004. Although this will still be less than 10% of all advertising expenditures, there is reason to believe that this estimate underestimates the amount of advertising that is in reality interactive.

Although the Internet is widely heralded as a new medium for interactive communications, consumers have already begun to provide evidence that they have integrated the Internet experience into their broader media use. Almost half of all personal computers are in the same room as the television set, and simultaneous viewing of television and access to the Internet are common. Such consumer directed

integration of television and the Internet is but one example of interactivity involving the integration of media by consumers. Combinations of older media, such as traditional print and broadcast advertising with the telephone (especially, but not exclusively 800 telephone numbers) have long provided a degree of interactivity.

At the most general level, feedback via sales reflects interactivity. Interactivity is, therefore, a characteristic of the consumer, not a characteristic of the medium; consumers can choose to respond or not. Thus, in this sense interactivity is not really new. What is new, are the speed, scope, and scale of interactivity that is provided by new information and communication technologies. The Internet is a new technology that makes some things simpler, cheaper and easier. It is a new way to communicate with consumers, for consumers to communicate with one another, and a new way to sell products and services to consumers, but it joins other media and distribution channels as vehicles for these tasks. It does have some features, such as hyperlinks, that are different from those found in other media, but other media also have unique characteristics. The increasing technological integration of telephones and television with the Internet also suggests that interactive media, and hence, interactive advertising, are not unique to the Internet.

1.1 Background of Study

As a practical solution we have to revise the old-fashioned advertising practices on buying properties or dream house to encourage, motivate, and attract potential customers despite of their physical, geographical, and economical handicaps to the developers' offices to get more understanding on the house, segments inside the house, as well as the location of the house. This suggests distance as well as interactive advertising and a buying process platform that motivates interactivity, hands-on virtual experienced, and flexibility of decision making effectively.

By placing the multimedia development within the decision-making context of such an important advertising subject as the buying a new house, the focus was intended to be on what the audience wanted, their needs. While the interactive multimedia application was clearly the means to deliver the knowledge (advertisement), the

content and structure of the advertising are developed with an audience that was intensely interested in the buying matter.

New communication technologies are creating new challenges for the advertising industry. While digital and high definition television, e-mail, the World Wide Web, and other new technologies represent new possibilities for advertisers, there is little information available regarding how to take advantage of them. There are indications that applying traditional models, designed for media that provide users with a passive, impersonal experience, will be unsuccessful for the new interactive digital media. A growing body of research and theory on the concept of presence may provide a valuable framework for advertisers as they try to adapt to the changing media environment. This paper considers some of the ways advertising is evolving to incorporate interactive media and how work on presence can guide that evolution.

Although interactive advertising is not new, its scale, scope and immediacy has increased substantially with the diffusion of new technologies such as the Internet. The growth of interactive advertising highlights the role of the consumer in the determining the effects and effectiveness of advertising, while challenging traditional assumptions about how advertising works. The active role of the consumer in determining the effects of advertising has important implications for how the effects and effectiveness of advertising are measured and how various measures are interpreted. The present paper offers a discussion of these issues and compares and contrasts traditional notions regarding the measurement of advertising effects with notions that recognize the active role of the consumer in interacting with advertising and the advertiser. Implications for future research are discussed.

1.2 Problem Statement

Dream Home Multimedia Advertising was selected as the subject matter of the interactive multimedia-advertising module because it might provide a customer that would want to buy a house, which is really important for daily activities. Through a exploration of the interactive advertising, customers can come to realize that: the importance of understanding the house and their segments inside the house, and location where it is developed.

Nowadays, customers need to do the site visit in order to see the particular house that they are interested to buy. Some of the customers do not have much time due to their busy working hour, and some of the customers live far away from the advertised properties' location.

There seems to be a great willingness on the part of company to provide distance-advertising opportunities. They see it, as going after a market that typically does not come through their doors: customers who live far away, or are disabled, or are employed full-time, etc. Moreover, with the coming of age of the baby boomers' offspring, properties developers' enrollments are about to explode and many developers lack the physical space to house more offices.

Much of the multimedia in advertising debate is played out in the economic arena: state legislatures, governors, company trustees are focusing on how they can get the biggest benefits bang for the buck. They also need to think about that other properties down the road or indeed around the world offering interactive promotions and how these advertising might lure their own customers away. Advertising without buildings, heat, utilities, etc. can make a lot of economic sense, both to prospective customers and to the developers that promote them. This kind of thinking is driving properties' developers agendas and the bottom line can come down to "Embrace multimedia advertising technologies," or face eminent downsizing or even closing.

This study was designed to link interactive multimedia advertising development with the social context of buying process, by direct engagement with the intended audience. Whereas cognitive decision-making measures knowledge of the house gained, the engagement describes the ongoing interaction between the customers and varying perspectives on the Dream Home Multimedia Advertising. By providing interactive multimedia elements such as animation, 3-D performance, audio, and visual-aid production, this project developed as a "user friendly" interactive advertising product.

1.2.1 Problem Identification

The main problem anticipated for this project is obviously to create the multimedia-advertising module that look realistic. This is to help the

application looks and feel more real from the understanding perspective. Another concern is the presentation of the house virtual images, plan of the house, and the mapping of the development location. There are several concerns such as loading of the module, software capabilities, user-friendliness, and therefore, it is crucial to use the best software and plug-ins that is readily available to the common users to achieve my project research objective, which is on Human-Computer Interaction.

Although there are many potential measures of advertising effects and effectiveness, there are unique problems associated with measuring advertising effects in an interactive setting. Some of these problems are similar to problems associated with measuring the effectiveness of more traditional advertising, but the reciprocal influence of consumer on marketer and marketer on consumer makes it far more difficult to identify primary causes and effects. There are some especially vexing issues associated with measurement in an interactive context, but research on these issues could be especially useful.

Interactive Advertising Does Not Work Alone: Advertising is only a part of a total marketing effort. A product that is poorly positioned, overpriced, inadequately distributed, badly packaged, or inferior to competition may suffer sales declines even though the advertising itself is well-conceived and professionally executed. The specific contribution of advertising to sales has always been difficult to ascertain. Interactive advertising may well make the determination of precisely what marketing actions produced a particular outcome even more difficult to do. The influence of any particular advertising message may be less important than the cumulative reciprocal communication between advertiser and consumer. Recently, several scholars have argued that the increasing availability of information, and the sophistication of the technology for obtaining, processing and analyzing this information, are blurring the boundaries of the several elements of the marketing mix.

There have also been calls for changes in the organization of both the marketing function and the firm itself to accommodate this blurring of traditional functional lines within marketing and between marketing and other functional disciplines within and external to the firm. This blurring of boundaries has been partially recognized by calls for "integrated communications," but the blurring extends beyond communication activities. Distribution and communication are becoming inextricably linked, and decisions about the one are increasingly difficult to make in isolation from the other. Indeed, it may be difficult to differentiate some marketing activities as clearly serving an advertising or distribution function. Similarly, where interactive advertising is used to better design products, it will be impossible to separate the effects of communication from product design.

Models of consumer response that focus only on the effects of advertising, or that attempt to separate advertising effects from other effects of the marketing mix are likely to be less than helpful or even misleading. Rather than measure the effectiveness of interactive advertising, it may be more useful to measure the effects of integrated marketing programs. Similarly, other consumers and other sources of information may play a role as great or greater than interactive advertising. Discovering consumers' use of these sources and how they integrate such information into decision-making will be a challenging research question.

The Sales Response Curve Does Not Typically Parallel Response to Other Measures of Advertising Effects: Often, sales build slowly at first in response to advertising and then accelerate. Thus, there is often a lag between the appearance of advertising and the sales response generated by that advertising. The length of the lag itself may be variable depending on both the product type and the advertising appeal employed. A lag between advertising and sales response is expected with all products, but it may be particularly acute for those items that are infrequently purchased. Likewise, interactive advertising may be very effective, but it may not produce sales until the consumer is in the market for the advertised product. Consumers who are not currently in the market for a given product are also less likely to

respond to interactive advertising. Customer trust, satisfaction, improved decision making and other measures may not translate directly into sales, yet may be particularly important in understanding why consumers do or do not choose to interact in an advertising context.

Advertising is Frequently Subject to Threshold Effects: The response to a marketing program may often be the result of the cumulative effects of an entire campaign rather than a response to a single advertisement or promotion. A $1,000,000 campaign may have no apparent measurable effect, whereas an expenditure of $2,000,000 for the same product may break through the consumers' barrier of awareness and pay for itself many times over. Interactive advertising requires that consumers not only pay attention, but also respond. There are likely to be even greater threshold effects in such cases. These threshold effects are often associated with the need to overcome competitors' advertising and promotion and capture the attention of consumers. Thus, it is likely that measures of advertising effectiveness for interactive advertising will need to focus even more on competitors' advertising and other marketing actions than has been the case for traditional advertising.

Use of Multiple Media and Consumers' Integration Across Media Make It Difficult - If not Impossible - To Associate Changes in In-market Sales or Brand Share with a Specific Medium: Sales response and changes in any of the many other measures of advertising effectiveness may result from a combination of media, or it may be possible that one medium affected the majority of the observed response, while others contributed relatively little. While it is possible to isolate the effect due to a given medium by using only that medium, this is not practical for many advertisers. It is simply not possible to research outcomes associated with each individual medium that may be used in a large campaign. Interactive advertising is likely to occur in contexts that also employ more traditional media. For example, a television commercial may direct consumers to a particular Web site or (800) telephone number. The observed response is likely to be the result of both types of advertising-the one may not work without the other. In addition, there may be

interaction effects of media, say between television and Web based advertising, or between newspapers. Such interaction effects are, by definition, the result of combinations of media. They cannot be attributed in part or as a whole to any on medium. One can only measure the outcome(s) associated with the whole.

Finally, Competitive Activity and Other Marketing Variables May Obscure the Relationship Between Marketing Activities and Sales: Thus, Sales Do Not Always Reflect the Effectiveness of Marketing Actions. Efforts to evaluate advertising and promotion in natural market situations are fraught with difficulties. In-market sales are the result of a complex set of events over which the marketer has little control. This is no different for the case of interactive advertising. Competitors may raise or lower price, increase or decrease expenditures on advertising, or introduce a new product. Retailers may feature products via traditional advertising, via their own interactive advertising or in-store. All of these factors will affect sales and make it difficult, if not impossible, to tease out the effects of specific advertising. Marketers are often interested in the cumulative effects of an entire campaign (Stewart 1999). Campaigns may be defined in terms of multiple advertising executions or combinations of advertising, promotion, and other marketing programs. Just as individual ads should be created with specific objectives in mind, so too should campaigns. Campaigns may have more than one objective, however.

1.2.2 Significance of the Project

The primary significance of this project was in creating advertising materials about the selling house. The development process was an essential part of this project, but ultimately the creation of selling house-advertising materials about this subject supersedes technological considerations.

The significance of the project was also in the exploration of interactive multimedia within a variety of social contexts, including a theatrical production setting. Many efforts at interactive multimedia rely on a

graphically pleasing appeal and an intricate matrix of indexing, resulting in the audience's need for extensive instruction on how to use the advertising module. This project focused on the content development about the decision making process by interacting with the customers first.

1.3 Objectives and Scope of Study

The objective of this project is to develop a prototype as the basis of inviting the audience to interactively participate in the choosing their desired house by working with a virtual interior view of each segments of the house, 360 degree image of each rooms in the house, the interactive location map of the house, considering the price range and the type of the house.

There is a lot about this digital medium that is unique and a lot that is not. One of the most important similarities is that, like in every other media, advertisers are being asked to pick up the tab for the content consumed by consumers. As of today, advertisers are not participating enough for the vast majority of the 7000 or so Web sites whose business models depend on advertising to make a profit.

Realizing this, it is important to peel back the layers of the onion so that can understand how the Interactive Multimedia is similar to other media and how it is fundamentally different. Only then can it unlock the incredible opportunities the multimedia technologies opens for advertisers.

The Interactive Multimedia, user can look at what they want, at their own speed and at their own convenience. But it is much more visually interesting and has, even in today's bandwidth constrained world, the rudimentary elements of multimedia. That is good for advertisers.

Secondly, it is an interactive media in which the user can participate in shaping his or her experience and in which advertising can present the opportunity for a two-way dialogue. That is really good for advertisers.

Finally, because of the interactive nature of the media, the consumer can make his or her point of view known loudly and quickly. That, too, is good for advertisers, provided they can put the feedback in proper context.

Traditionally advertising has been defined as "a form of controlled communication that attempts to persuade consumers, through use of a variety of strategies and appeals, to buy or use a particular product or service" and relatedly, "paid nonpersonal communication from an identified sponsor using mass media to persuade or influence an audience". But it is becoming abundantly clear that although the central goal of advertising is still the same - to persuade consumers to purchase a product or service - the media environment into which advertising is placed is changing, and as a result of this trend, the nature of advertising is changing as well.

Many new channels of mass communication were developed during the latter part of the 20th century, exposing the public to an ever-increasing number of mediated messages. Every day, citizens are faced with hundreds of advertising appeals delivered via television, magazines, newspapers, billboards, direct mail solicitation, e-mail spam, World Wide Web banners and pop-up boxes, and more. As a result of exposure to these messages, some argue that consumers have developed a more sophisticated understanding of the mass media and of advertising. All of this creates a greater challenge for advertisers, and all media producers, to attract attention, especially thoughtful attention, to their messages.

In responding to this challenge much advertising has become more colorful, more vibrant, bigger, faster-paced, louder, and more obnoxious (in fact it is the "quiet" ad which stands out from the others because it is so rare). Although this trend has been associated with television advertising, the same thing seems to be happening on the World Wide Web. While the "aggressive, more is better" approach may succeed in the short run, it is likely to fail in the long term as consumers habituate to the new style and learn to ignore even the most aggressive messages. A more promising approach takes advantage of new technological possibilities to provide a new kind of advertising experience, a customized and personalized one. This goes beyond designing the content of messages to target specific demographic and psychographic groups. The notions of personalization and control, mentioned in the definitions of advertising above, are central to this new trend. The Internet and other interactive

technologies make it possible to create ads that are not only more targeted, but more personal, in which advertising is an experience in which the consumer participates and is engaged. Thus, the model of advertising as communication that is nonpersonal and controlled exclusively by the sponsor seems to be evolving into one in which advertising is personal and interactive.

Interactive advertising gives consumers more control by giving them a range of choices in their experience with product information. And it produces a sense that the communication is more personal than traditional media ads because it creates or simulates a one-on-one interaction. Johnson (2000) characterizes the future of consumer marketing this way: "Consumers, in receiving marketing messages or doing e-business, will expect to be treated as individuals, with their preferences catered to.

This interactive advertising module was designed for properties' developers and as well as for the customers that interested in buying a house. The target audiences were:

- Male and female;
- Of varying ethnic backgrounds;
- Consumers that interested in buying a house
- Challenged by the motivation to learn how to use the newly-style of advertisement, due to attracted with the interactive multimedia itself; and
- Developers personnel, such as CEOs, project managers, sales person etc.

1.3.1 Relevancy of the Project

The scope of this project, based on the Gantt Chart (refer to Appendix 1) mainly covers research and of solution to the problems incorporating of findings into the prototype, multimedia authoring as well as application of relevant HCI principles and techniques. A multimedia prototype will be produced as an output of this project.

Research done from various organizations has shown that people's decision-making styles differ; most people especially old customers absorb and retain visual material more readily than other kinds, but the world is full of ear-

learners and those who thinking by physical practice. The average decision making retains about 20% of what is heard, 40% of what is seen and heard, and 75% of what is seen, heard, and done. A traditional advertising mainly offers seeing and hearing; print- or video-based distance study does the same, which is passive advertising techniques; but interactive computer advertising offer all three modes of learning. As Edward I. Vockell noted in an article on instructional principles, "One of the major strengths of the computer is that it can present the same information in many different ways." The advantages of interactive computer advertising are flexibility, lower cost, and active information gathering. Interactive advertising are particularly effective in fields such as properties sales, engineering promotion, science module, architecture, and archaeology, where hands-on manipulation of elements in a design or research project can be simulated on a computer.

Cutler(1990) defines the new interactive media as media that provide the opportunity to instantaneously advertise, execute a sale, and collect payment. With the advent of the Internet and other technologies, the interaction between and among consumers and marketers is becoming increasingly more pronounced. Consumers can collect and provide information by searching and navigating through commercial Web sites, they can post and customize their preferences, and they can communicate with other consumers as well as product and service providers. Similarly, marketers can use information obtained from consumers to customize their advertisement messages, to segment their audiences, to facilitate consumer search for selected types of information and products, and to collect information about consumers' preferences to improve future products and services. Moreover, marketers can potentially provide consumers with a more enjoyable experience by offering such services as information, entertainment, customer service and technical support through e-mail, Web sites, live operators, and soon via video-conferencing.

Use of interactive advertising through new media such as the Internet, also draws attention to the contrast between traditional assumptions about advertising and its effects and the realities of communication in the market

place. Traditional approaches to advertising practice and research implicitly assume that advertising is something the firm does to the consumer. Interactive advertising makes it clear that this is a very limited view of advertising and highlights the need to understand what consumers do to advertising. The reasons consumers seek information, self-select information for attention, process and use information, and respond to information are critical for understanding the effects of advertising and for designing measures of advertising effectiveness in an interactive context. Self-selection of both the sources from which information may be obtained, and the way this information is processed, is an increasingly important determinant of consumer behavior. Market information systems that fail to consider the impact of customer control of information will, at best, be incomplete, and potentially misleading.

The productivity and contribution of advertising research during the past forty years is impressive. It has revealed much about human behavior and the influence of communication. Nevertheless, much of the research during the past fifty years has been conducted from the perspective that advertising acts on consumers to produce responses (or not). This perspective served the profession well when markets were growing, media outlets were few, and the opportunities for consumers to respond to advertising were limited. This is clearly no longer the case, at least in the major industrialized nations. Rather, markets for many products are now mature and exhibit little growth. There has been a proliferation of media outlets, which, in turn, has reduced consumers' attention to any one of these outlets. Increasingly customers have the opportunity to respond directly and immediately to advertising or to ignore it or block it out altogether. This means that the context in which advertising is used has fundamentally changed. In large measure, it is now the consumer who does something to or with advertising, not vice versa. In the future, measures of advertising effects and effectiveness will need to explicitly recognize the more active role of the consumer in the communications process.

The interactive multimedia-advertising topic, Dream House in the other hands can be used to provide a clear representation of business promotion. The technique starts with an overall picture of the house being sold and continues by analyzing each of the areas inside respective house. The technique exploits a method called top-down expansion to conduct the decision making in a targeted way. The result of the product is a satisfaction of a consumers that using the system in buying their dream home.

1.3.2 Feasibility of the Project within the Scope and Time Frame

This project requires a complete advertising material and decision-making factors in the interactive manner to illustrate the effects and method of creating a very real human-computer interaction environment. As it is intended, the project will present a interactive advertising module of the process in buying a dream house. However, due to time constraint, which is less than 3 months, the aim is to generate only major interactive advertising application without the artificial intelligence (exercise with auto-reaction) added. The feasibility survey of the interactive learning module will be done during the earlier stage of the development.

CHAPTER 2

LITERATURE REVIEW

Technology is important to the human when dealing far away from each other. It has become a part of or life whereby information is central of learning process especially for customers in each society and organizations. Without vast information, they would be left behind of their decision-making skills.

Customers can select a "reservation less" feature for meeting on demand, an executive feature to meet the special needs of high-profile meetings like press conferences and investor relations calls, or Web meeting capabilities for online document and desktop sharing.

The University of Maryland at College Park has developed an interactive program on Far Eastern culture and geography called "Hyperties"; the Graduate School of the U.S. Department of Agriculture offers four courses to teach teachers how to use multimedia. The University of Texas at Austin has been active in developing interactive courseware: individual lessons in "American Civilization" and a complete geography course ("The Geographer's Craft") are currently underway. Tulane University is developing a CD-ROM course on the Civil War called "Fort Sumter" and an archaeology course called "Pompeii." In addition, A number of interactive history and archaeology courses are commercially available from such publishers as D.C. Heath, Voyager Company of New York, and Scientific American, but we are unaware of any commercially produced engineering courses in the area of computer organization/architecture.

An interactive computer-based application offers many attractive advantages such as:

• Reduced decision making time: Over the past 15 years, many studies have been published that show that interactive courses reduce understanding time requirements by fully 50%. Self-pacing or individualized instruction, which allows customers to fast-forward through areas they have already mastered and spend more time on their

desired spots, probably accounts for most of this, but another factor is immediate reinforcement and review.

• Lower cost: The design of interactive computer advertisement (that is, the front-end investment) is much higher than the cost of designing a print-based course, but replication and delivery of the course is much lower. This, in turn, means that corporations or government institutions that pay for their advertising find interactive advertisement more cost-effective than print-based or video-based courses.

• Consistent promotion objective quality: Different sessions of the very same advertisement will be presented the same to the audience.

• Self-pacing, Privacy, and flexibility: This is particularly important to adult customers. Interactive computer advertising makes the developers' offices more accessible to each individual buyer and brings the developer's office to the workplaces and privacy of the homes. Privacy reassures those who have been out of the offices for many years and feel awkward about asking "stupid questions" in front of others. Time flexibility is essential to adults with full-time jobs and/or families.

• Better retention and more active experienced than in the site visit: Improved test scores have ranged from 25% higher in a study of Spectrum Interactive/National Education Corporation to a staggering 300% higher in a remedial high school class in Bethel Park, PA. One contributing factor is that teachers can monitor and communicate with many more students at a time than they can in the traditional classroom, especially using the network systems. Another is that interactive learning requires frequent and regular input from the student; it is impossible for students to doze through lectures, buy other students' notes, and cram for exams at the last minute — all of which are inefficient learning strategies.

• Lack of expertise: Interactive computer based advertising will help to solve the budgetary issues and lack of expertise in promotion field. Specially, small organizations could incorporate and advertise their selling properties as part of their curriculum through the network. All of these factors lead to increased motivation and "investment" in business.

• Increased access to advertising: Advertising can be delivered anywhere and anytime by satellite, video, computer, e-mail, or print. It offers anyone a chance to use a application, whether there is a nearby the properties' location or not. Places as disparate as prisons, Navy submarines, and oil-company stations in the Saudi Arabian desert are full of distance learners pursuing Bachelor's and even Master's degrees. The disabled and people who are geographically tied to their jobs benefit especially from computer courses.

"With the technology available, it's expected more so than 10 or 20 years ago, that employees make every effort they can to be productive during the work week," even during a snowstorm, said Jen Jorgensen, spokeswoman for the Society for Human Resource Management in Alexandria, Va. "The boundaries of what work is and where work is have changed quite dramatically."

In today's media buying climate, there is little information to help buyers understand how best to allocate their media dollars across television and Internet buys. Data on how each media's advertising units compare on key measures of brand recall, communication and purchase/usage/consideration has been unavailable if not extremely limited.

Comparison of other method in advertising to Interactive Multimedia advertising has been a somewhat complicated research issue for multiple reasons.

First, the methodologies themselves have to be consistent so that comparisons can be validly made across equivalent measures collected in the same methodological fashion. Without this rigor, comparisons suffer due to the need to make "adjustments" across data sets for the varying methodologies employed or the manner in which the questions are asked.

Second, the ads themselves need to be for the same brand with the same strategy and the same if not extremely similar creative executions.

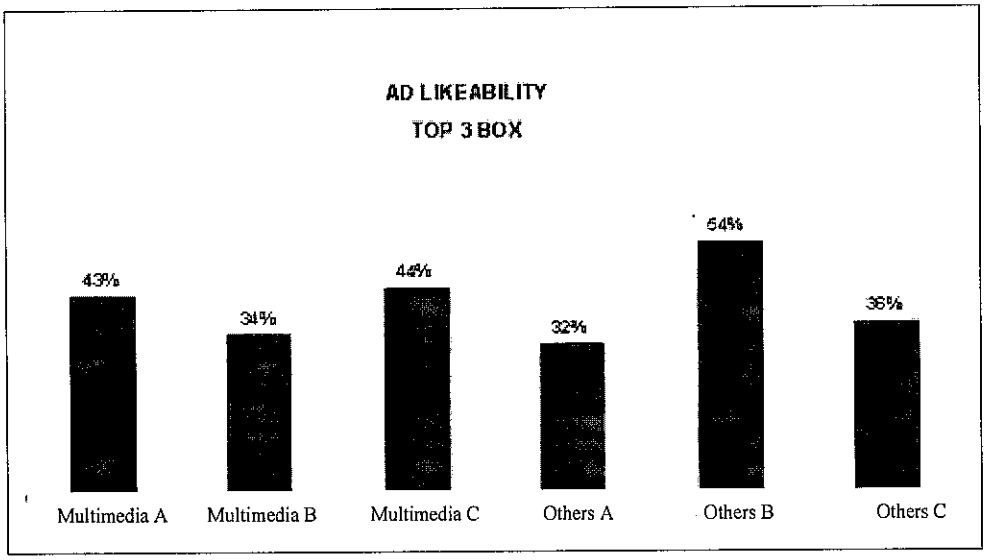
While this rigor may have been brought to some tests, these results have not been made public. For this reason, some company endeavored to initiate a study, which would compare these two specific media across consistent traditional metrics in order

to best understand how communication units on each can complement each other. Specifically, they wanted to learn which metrics each media, might better address, and therefore have greater insight as to how to best buy against those objectives.

Based on these data, it can be concluded that Interactive Multimedia Advertising can accomplish many, if not all, that a other method in advertising can deliver across traditional metrics of brand recall, communication and persuasion to purchase, usage and/or consideration. The main reason for this appears to be centered in the multimedia advertisings unit similarities to other method in advertising.

Multimedia advertising are liked equally as well as the other method in advertising spots in two of the three test cases. Multimedia advertising are capable of generating the same level of likeability within the understanding that copy makes a difference.

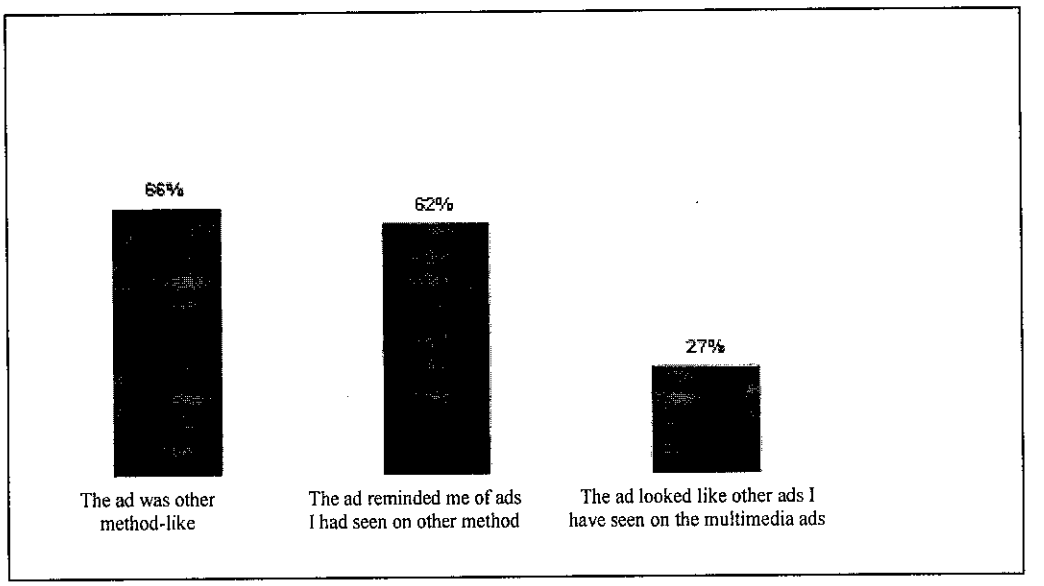
Table 2.1: Level of Likeability within the Understanding in Advertising



It is even more important to note that likeability can be similar given that other method in advertising is simply liked well than Internet advertising. There is nearly a 2-to-1 ratio of other method in advertising likeability over Interactive Multimedia advertising, in general.

Finally, the multimedia advertising to be more likes other method in advertising and less like web advertising. This similarity to other method in advertising helps to explain why on an individual ad basis, two were rated the same as television in terms of likeability even when television advertising has an advantage in general.

Table 2.2: Brand Recall

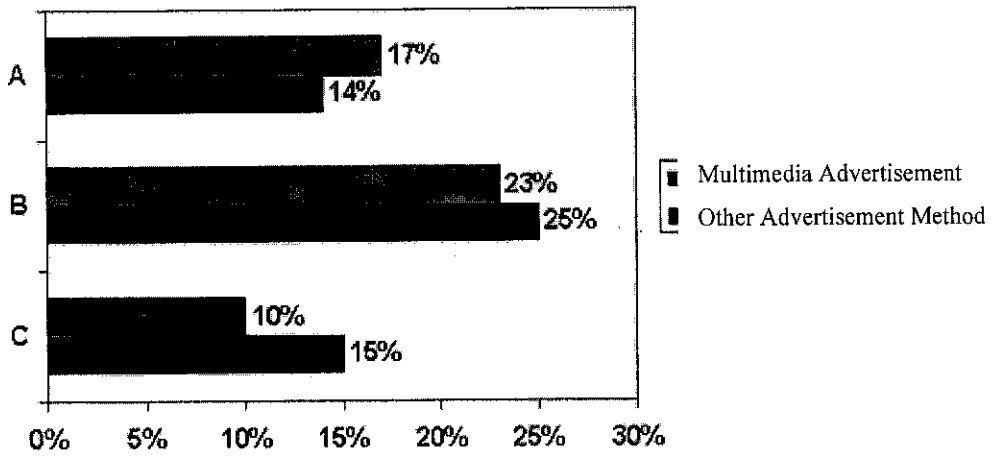


The other method in advertising has a very slight advantage in terms of branding relative to the multimedia advertising tested. In one of the test cases, other method of advertising has a clear advantage. However, in the other two cases, there is no difference between the two ad units. These data suggest that it is possible to brand as well on the Internet using a the multimedia advertising as it is on television, but other method in advertising does have a moderate advantage as a medium based on these test cases.

The brand was clearly communicated and others would know it by seeing the advertisement. In both the multimedia advertising and the other method in advertising, the numbers again, were very similar for all three brands.

These data shows the level of intent to purchase, interest in using/driving/drinking and consideration intent in general and also based on seeing the advertisement. Basically, both the multimedia advertising and other method in advertising units generated very comparable levels on each of these measures including "based on seeing this ad".

Table 2.3: Positive Purchase Intent



Finally, there is the matter of the appropriate criterion for decision-making regarding interactive advertising. Evaluation of advertising requires a criterion for success. This criterion needs to be specific, measurable (read quantitative), and bounded by time. It is also important that the criterion be reasonable in light of the current situation in the marketplace. A common mistake in assessing the effectiveness of advertising is to assume that advertising should always produce more of something. Thus, the criterion for success becomes higher levels of awareness, greater levels of trust or increased sales volume. Yet, it takes only little thought to see the error in this perspective. If one hundred percent of consumers are aware of a product, awareness cannot increase further. If every customer who might use a product does, in fact, buy it, and buys it for every conceivable use, there is no opportunity for an increase in sales short of finding new markets or new uses for the product.

There are certainly upper bounds on the amount of time a given consumer is willing to spend interacting with a marketer. While these may appear to be extreme circumstances, they are not so unusual as they may seem. For many mature products awareness is very high and consumers are often quite loyal to one brand or set of brands. In these circumstances the role of advertising may be the prevention of losses of sales by reminding consumers of the product and reinforcing loyalty. Andrew Ehrenberg (1983, 1988), a leading British marketing scholar has long argued that the primary role of advertising for mature products is defensive, that is, its purpose is to hold on to current customers. This may well be the role of interactive advertising as well. In mature markets, maintaining interaction (at a given level) with consumers may be the appropriate criterion for assessing the effectiveness of advertising. In cases where advertising is primarily defensive, the evaluation of effectiveness must take a different form. No change in measures of awareness, attitudes, interaction or sales may indicate success.

Obviously, if these measures decline, there is a problem. But if they stay the same, it may not mean that marketing efforts have failed since there is no information about what might have happened had there been no advertising. Indeed, in these situations, which are numerous, the only way to assess the effect of advertising or promotion is to stop, then evaluate what happens. Advertising for any given brand does not occur in isolation. Rather, it most often occurs in the context of advertising and promotion for competing brands. Most measures of effectiveness tend to ignore this fact, however. The only exception is choice, where the decision to buy one brand means that other brands are not purchased. Measures of awareness, comprehension, and attitude are often obtained for a given brand of interest but not compared to similar measures for competitors. Yet, the absolute value that a brand obtains on an attitude scale is really less important than the fact that attitude toward the brand is higher than for competitors. This notion of relative measurement may seem trivial, but a number of researchers have suggested that relative measures may be more sensitive than absolute measures. This appears to be true of a wide range of measures. For example, one study found that measures of recall appeared to be unaffected by advertising when recall was measured for only the advertised brand. However, when the recall for the advertised brand was compared to recall for competitive brands, the advertising had a decidedly strong effect.

CHAPTER 3

METHODOLOGY/PROJECT WORK

Reliance on tried and tested systems and a formal methodology of development is one of the critical factors that assure project success. These systems ensure that development proceeds on a planned path and deviations from standards are addressed before they can seriously impact project time, cost or resources.

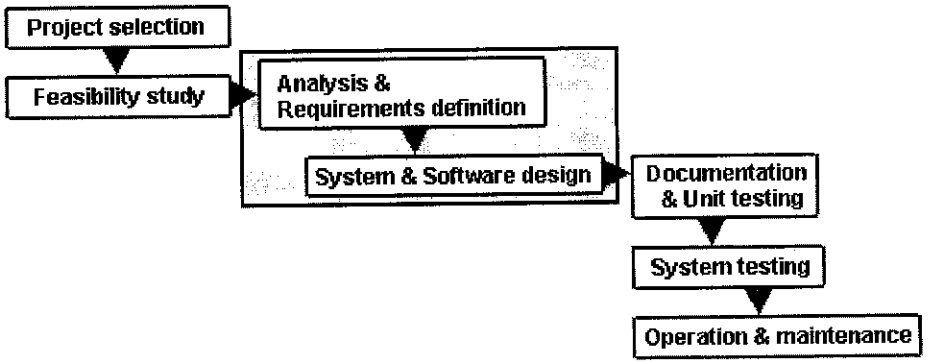
Having said this, various systems for software development and have sufficient maturity and experience to modify or select the most appropriate system for ensuring success for the projects at the initial stage itself.

This project intended to remedy questions of searching, organizing, and manipulating information by interacting with the customers at each phase of production. Enabling the audience to determine its own path, or direct engagement with the material, required the extensive study of live performance, drama theory, and narrative development. This approach moved the project beyond the reliance on computers to a customers-driven development. For the field of multimedia, it brought a challenge to remember the human component, the imagination of the customers that compelled the discovery of so difficult a decision making through experienced about the buying their dream house.

3.1 Procedure Identification:

The process from problem identification phase or user requirements phase until the implementation phase in developing the interactive multimedia advertising module involve a number of distinct stages. These stages are referred to as system development lifecycle (SDLC). The SDLC consists of seven main phases during which defined IT work products are created or modified. I have adopted the methodology was adopted during the development of this project because it provides systematic and orderly approach in solving system problem. The major phases of the project can be seen in Table 3.1.

Table 3.1: System Development Life Cycle



Planning Phase And Feasibility Study

The concept is further developed to describe how the application will operate once the approved system is implemented, and to assess how the application will impact the student understanding. To ensure the learning module provide the required capability within the time frame, project resources, activities, schedules, tools, and reviews are defined.

Requirements Analysis Phase

Functional user requirements (customers) are formally defined and delineate the requirements in terms of data, application performance, learning module syllabus, and human-computer interaction aspects for the system. All requirements are defined to a level of detail sufficient for application design to proceed. All requirements need to be measurable and testable and relate to the students need (or in my case, my supervisor's needs) or opportunity identified in the Initiation Phase.

Design Phase

During this phase, the physical characteristics of the application are designed. The operating environment is established, major subsystems and their inputs and outputs are defined, and processes are allocated to resources. Everything requiring user input or approval must be documented and reviewed by the user. The physical characteristics of the system are specified and a detailed design is prepared. Subsystems identified during design are used to create a detailed structure of the interactive learning module. Each subsystem is partitioned into one or more design units or modules.

Development And Documenting Phase

The detailed specifications produced during the design phase are translated into hardware, communications, and executable application in this stage. Application shall be unit tested, integrated, and retested in a systematic manner. Hardware is assembled and tested.

Integration and Testing Phase

Testing is done before the product is made live. Every element and link on every screen is checked thoroughly in each target browser or platform. In practice, we test the product at every stage of development on an ongoing basis - so bugs are tracked and removed as they are found. The application was tasted by the customers that decided to buy a house during this phase. Most of the user satisfied with the application due to the reasons that they do not have to go to the advertised house's location, the application itself have already help them in decision making, and the application includes all the data that customers might need to know. The various components of the interactive multimedia-learning module are integrated and systematically tested. The user (customers) tests the system to ensure that the functional requirements, as defined in the functional requirements document, are satisfied by the developed or modified application.

Implementation Phase

The application are installed and made operational in a production environment (in my case, installed in user-interface device such as CD). The phase is initiated after the application has been tested and accepted by the user. This phase continues until the system is operating in production in accordance with the defined user requirements.

Operations and Maintenance Phase

The application is monitored for continued performance in accordance with user requirements, and needed learning module modifications are incorporated. The operational application is periodically assessed through In-Process Reviews to determine how the learning module can be made more efficient and effective. Operations continue as long as the application can be effectively adapted to respond to the customers needs. When modifications or changes are identified as necessary, the interactive learning module may re-enter the planning phase.

It is widely assumed that interactivity can make advertising more effective (e.g., Johnson, 2000). However, little is known about why this should be the case, and thus how the characteristics of a medium or an ad within a medium should be designed to make advertising more effective.

One thing interactivity is thought to increase is the sense of 'presence,' and presence is thought to lead to a variety of effects which include enjoyment and persuasion, primary goals of advertising. Therefore presence, and research and theory concerning presence, may serve as a useful guide to understanding and marshaling the use of interactivity in advertising to maximum effect.

Presence (a shortened version of the term "telepresence") is a psychological state or subjective perception in which even though part or all of an individual's current experience is generated by and/or filtered through human-made technology, part or all of the individual's perception fails to accurately acknowledge the role of the technology in the experience. Except in the most extreme cases, the individual can indicate correctly that s/he is using the technology, but at *some level* and to *some degree*, her/his perceptions overlook that knowledge and objects, events, entities, and environments are perceived as if the technology was not involved in the experience. Experience is defined as a person's observation of and/or interaction with objects, entities, and/or events in her/his environment; perception, the result of perceiving, is defined as a meaningful interpretation of experience.

The explication goes on to identify several potential types or dimensions of presence, using the labels associated with them by different authors.

"Spatial presence" (or "physical presence," "a sense of physical space," "perceptual immersion," "transportation, " or "a sense of being there") occurs when part or all of a person's perception fails to accurately acknowledge the role of technology that makes it appear that s/he is in a physical location and environment different from her/his actual location and environment in the physical world. For example, a variety of stimuli provided by a virtual reality system can cause the user to perceive that s/he is moving through and interacting with the environment created by the technology rather than the user's actual physical environment; the user may comment, "It seemed as if I was someplace else!"

"Perceptual realism" (or "sensory presence," "naturalness," "ecological validity", or "tactile engagement") occurs when part or all of a person's perception fails to accurately acknowledge the role of technology that makes it appear that s/he is in a physical location and environment in which the sensory characteristics correspond to those of the physical world, i.e., s/he perceives that the objects, events, and/or people s/he encounters look, sound, smell, feel, etc. as they do or would in the physical world. Note that although technology-generated environments that look, sound, etc. the same as environments in the physical world are more likely to evoke this, and perhaps other, type(s) of presence, it is the *perception* that the sensory characteristics of the technology-generated environment and those of the physical world correspond that defines this type of presence rather than the *actual* correspondence of the characteristics. For example, because it provides large, high resolution, three-dimensional images and high fidelity, dimensional sound, a 3D IMAX film presentation can cause the viewer to perceive that s/he is in an environment that looks and sounds as the viewer believes it does or would in the physical world; the user may comment, "It seemed so real!"

"Social realism" occurs when part or all of a person's perception fails to accurately acknowledge the role of technology that makes it appear that s/he is in a physical location and environment in which the social characteristics correspond to those of the physical world, i.e., s/he perceives that the objects, events, and/or people s/he encounters do or could exist in the physical world. Again, although technology-generated environments in which objects, people, and events act as they do in the physical world are more likely to evoke this, and perhaps other, type(s) of presence, it is the *perception* that the social characteristics of the technology-generated environment and those of the physical world correspond that defines this type of presence rather than the *actual* correspondence of the characteristics. For example, aA well written, well acted, filmed version of events that have occurred in the physical world can lead the film viewer to perceive that s/he is in an environment in which objects, events, and people act and/or respond in the way(s) the viewer believes they did or would in the physical world; the user may comment, "It seemed so realistic!"

"Engagement," (or "involvement," or "psychological immersion") occurs when part or all of a person's perception is directed toward objects, events, and/or people created by the technology, and away from objects, events, and/or people in the physical world. Note that the person's perception is not directed toward the technology itself but the objects, events and/or people the technology creates. For example, a virtual reality system, 3D IMAX film, or a well written and acted film can cause the user or viewer to devote all of her/his mental effort to processing the stimuli created by the technology and ignore stimuli (e.g., other people, equipment, furniture, etc.) in her/his actual physical environment; the user may comment, "It was so involving!"

"Social presence" (distinct from social *realism*) occurs when part or all of a person's perception fails to accurately acknowledge the role of technology that makes it appear that s/he is communicating with one or more other people or entities. There are three distinct forms of social presence.

"Social actor within the medium" and "parasocial interaction" occur when part or all of a person's perception fails to accurately acknowledge the role of technology in her/his perception that s/he is engaged in two-way communication with another person or people, or with an artificial entity (e.g., a computer "agent"), when the communication is in fact one-way, from the technology to the person without feedback from the person to the other entity(ies). For example, those who create and appear in television programs use a variety of techniques (e.g., direct address and sincerity) that can lead the viewer to feel that s/he is interacting with and/or in a "relationship" with the personalities and characters s/he encounters and the same techniques can be used by a computer "character"; the user may comment, "It seemed like we were interacting!"

"Shared space (transportation)" occurs when part or all of a person's perception fails to accurately acknowledge the role of technology in her/his perception that the person or people with whom s/he is engaged in two-way communication is/are in the same physical location and environment when in fact they are in a different physical location. For example, advanced video-conferencing systems can create for a user the illusion that s/he is in a face-to-face meeting in which all the participants are in the same room; the user may comment, "It felt like we were all together there!"

"Medium as social actor" occurs when part or all of a person's perception fails to accurately acknowledge the role of technology in her/his perception that s/he is engaged in communication with another entity when in fact the other entity is merely a technology or medium (e.g., computer, television, etc.). For example, the ability of a computer to interact with a user in real-time, use human (rather than machine or technical) language, and fill a social role (e.g., bank teller or teacher) can lead even an experienced user to follow social norms (e.g., regarding gender stereotypes and third-party evaluations) that are usually reserved for human-human interaction; the user might not be aware of this phenomenon, but if s/he is, s/he may comment, "It seemed like a person!"

Presence scholars are working to determine which of these dimensions of presence are valid and distinct, and to develop instruments, including paper-and-pencil questionnaires, to measure them (see Lombard, 2001b for a discussion).

Among the many likely effects of presence are increases or decreases in physiological arousal, feelings of self-motion (vection), and motion sickness; enjoyment, empathy, connectedness (involvement, mutuality, engagement) with other people, and parasocial relationships; learning, improved task performance, and skill training; a number of different emotional responses; persuasion; and some potentially negative effects including psychological desensitization and distorted memory and social judgments.

Several characteristics of a medium's form and content (as well as characteristics of the media user such as age, gender, prior experience with a medium, and willingness to suspend disbelief) are said to increase users' sense of presence:

Medium form variables

- Interactivity
- Use of voice
- Number and consistency of sensory outputs
- Visual display characteristics
- Image quality or resolution
- Image size

- Proportion of visual field (combination of image size and viewing distance)
- Use of motion and color
- Dimensionality (e.g., 3D technologies such as IMAX, 3D borders on web
- graphics)
- Use of subjective camera techniques (e.g., direct address, point-of-view
- movement)
- Aural quality or fidelity
- Aural dimensionality (e.g., surround-sound)
- Volume level
- Output for other senses (e.g., smell, touch, movement)
- Obtrusiveness of medium
- Use of live (versus recorded or constructed) material
- Number of people/users

Content variables

- Social realism
- Use of media conventions
- Nature of task or activity

While presence is often discussed in the context of advanced (or even experimental) media such as 3D IMAX films and virtual reality, it has also been shown to occur with traditional media available to advertisers today, such as standard broadcast television and personal computers. Some of the critical cues that apparently lead to presence responses are available in these media, or could, with relative ease, be made available. A primary example is the World Wide Web: it provides interactivity cues, albeit at a primitive level, with text messages that thank the user for "visiting" a site, menus and indexes that allow the user to choose where to "click" and thus which links to follow and to control the pace of the experience. The use of direct address, by celebrities or animated characters (e.g., Jeeves on the Ask Jeeves web site (http://www.ask.com) and the virtual newscaster, carefully chosen language and other social cues (e.g., made available via voice and video), can help make consumers feel that an advertising appeal is personalized by giving them a connection with the product, company, company representatives, etc.

The question of course is how to go about creating advertising for traditional, new, and emerging media to take advantage of their potential to evoke presence, and thus engagement, enjoyment, and persuasion.

In Table 3.2, and in the discussion below, we describe how those who design advertising experiences for consumers might take advantage of the known and hypothesized connections between interactivity and presence, and between presence and persuasion. Note that there is considerable overlap in the characteristics of interactive advertising that are likely to evoke the different types of presence; the presentation that follows highlights those characteristics that serve to differentiate the types of presence.

Table 3.2: Presence and Interactive Advertising

Dimensions of Presence	Exampleof interactive advertising	Content/Formal Features	Interactivity
Spatial Presence **"It seemed as if I was someplace else!"**	Ad visually represents an environment (e.g., store, office, city street) for shopping/seeking information about product	Point-of-view movement Language of transportation (e.g., "thanks for coming") Text and audio only as it relates to the environment. Minimal use of editing/change of scene (not initiated by user)	Number/Type of user Inputs: Body movement Visual orientation Number/type of characteristics modified by user: Pace of movement determined by user Range in each characteristic Wide view Choices of movements/ destinations Speed Minimize lag Matching user input/medium

			response Joystick to move Mouse movement
Perceptual Realism **"It seemed so real!"**	Visuals of products that sound, feel, and/or look "real."	Photorealistic images. Use of "real" looking people (rather than animated representations). Appropriate ambient sounds. Image takes up entire screen.	Number/type of user inputs: Haptic Smell Audio Number/type of characteristics modified by user: User can pick up/move/drop/use objects Range in each characteristic: Texture of objects Variety of sounds/voices Speed: Minimize lag (vital) Speedy responses Matching user input/medium response: Forced feedback. Appropriate audio/written output in response
Social Realism **"It seemed so realistic!" (how people and objects**	Visuals of products that act/respond "realistically"/ believably.	Characters, products act as we'd expect. No outrageous claims	Number/type of user inputs: Audio

act)		Consistent rules followed in the environment Appropriate responses to input. Varied responses.	Haptic Number/type of characteristics modified by user: Range in each characteristic: Type and volume of ambient sound Extensive vocabulary of speech recognition system Speed: Minimize lag (vital) Matching user input/medium response: Appropriate responses (vital)
Engagement **"It was so involving!"**	Web site including a virtual ride or tour of an environment for the user. Visually and/or aurally appealing banner ad.	Point-of-view movement Vibrant colors Welcoming characters Stimulating music	Number/type of user inputs: Visual Audio Haptic Smell Number/type of characteristics modified by user: Intensity of sound Color and brightness Range in each characteristic Large number of objects or people to

			interact with. Type and volume of audio Variety of colors Speed: Fast-paced virtual environment.
Social Presence **Parasocial interaction:"It seemed like we were interacting!"** --- **Shared space: "It felt like we were all together there!"** --- **Medium as social actor: "It (e.g., a computer) seemed like a person!"** ---	Company mascot/ representative to share information. --- Talk to salesperson via web camera. --- Special cases: A program that takes over the computer - and "interacts" with user. ---	Friendly/informal language Sincerity Simplicity Direct address Steady (non-shaky) video	Number/type of user inputs: Visual Audio Body Movement Gesture Eye Gaze Personal identification technology Number/type of characteristics modified by user: Character responds to user actions when appropriate. Range in each characteristic: Extensive vocabulary of speech recognition system Speed: Minimize lag Matching user input/medium

			response: Use of social feedback Talk to and be talked to; type and be typed to Say anything and get wide range of responses

Designing Presence-evoking Interactive Advertisements

As indicated in Table 3.2, each type of presence suggests different (although in many cases related) design considerations. In this section we describe examples of (hypothetical) interactive advertising messages that might result from applying extant knowledge regarding presence. In most cases, the messages (or less elaborate version of them) could be created with software that is currently widely available and affordable. The examples are not meant to be exhaustive but rather to illustrate the general principles.

3.2 Tools Required

Below are the possible tools and software required for the project:

1. Macromedia Director
2. Flash
3. Ulead Cool 360
4. QuickTime
5. Macromedia ShockWave
6. 3D Studio Max

System requirements

The following hardware and software are the minimum required to author Director movies:

-	For Microsoft Windows: An Intel Pentium II 200 processor running Windows 98, 2000, or XP; 128 MB of available RAM plus 100 MB of available disk space; a color monitor; and a CD-ROM drive
-	For the Macintosh: A Power Macintosh G3 running System 10.1 or later; 128 MB of available RAM plus 100 MB of available disk space; a color monitor; and a CD-ROM drive

The following hardware and software are the minimum required to play back Director movies:

-	For Microsoft Windows: An Intel Pentium II 200 processor running Windows 95/98, 2000, XP, or NT version 4.0 or later; 32 MB of installed RAM; Netscape Navigator 4.0 or later, Microsoft Internet Explorer 4.0 or later, or America Online 4.0 or later web browser; and a color monitor
-	For the Macintosh OS X: A Power Macintosh G3 running System 10.1 or later; 128 MB of available RAM; Microsoft Internet Explorer 5.1 or later; and a color monitor
-	For the Macintosh Classic operating system: A Power Macintosh 180 (G3 recommended) running System 8.6 or later; 32 MB of installed RAM; Netscape 4.0 or later, Microsoft Internet Explorer 4.5 or later, or America Online 4.0 or later web browser; and a color monitor

Integration with other Macromedia MX products

Director MX is truly a part of the Macromedia MX family; this is evident in the workspace, which matches those of other Macromedia MX products, as well as in other aspects of the application's strong integration with Macromedia Flash MX,

ColdFusion MX, Flash Communications Server MX, and other Macromedia MX products.

The Macromedia MX workspace lets you organize and customize an environment that's shared among Dreamweaver MX, Fireworks MX, and Macromedia Flash MX. The familiar and flexible working environment helps you maximize productivity. Dockable panels can be grouped and collapsed or expanded as needed for a smooth workflow.

Enhanced control of Macromedia Flash media through Lingo gives you complete access to all properties and methods of Flash MX ActionScript objects. Greatly reduce your development time by directly controlling all elements within your content that were authored in Flash MX.

Access to the Flash MX launch-and-edit feature lets you simply double-click a SWF file to automatically launch Flash MX. Once you edit the file, it's automatically saved and reimported into Director MX. This roundtrip editing significantly streamlines your workflow.

Macromedia Flash Communication Server MX support allows you to use all the functional capabilities provided by Flash Communication Server MX, including the ability to access installed USB or FireWire cameras as well as installed microphones. You can combine the power of the Flash Communication Server MX with Director MX to create multiuser games, distance-learning applications, and real-time collaboration forums. Previous users of the Shockwave Multiuser Server are encouraged to use Flash Communication Server MX. However, the Shockwave Multiuser Server is available on the Director installation CD.

Macromedia Flash MX importing lets you take advantage of the power of Flash MX and its lightweight vector graphics by importing Flash files into Director MX content. Director developers can use this powerful combination to create the most effective multimedia content.

Macromedia Flash Remoting MX provides a secure, high-performance connection between Macromedia ColdFusion MX and Shockwave Player. When used with

Director MX, Flash Remoting MX lets you easily pass data to ColdFusion MX and back.

Macromedia Fireworks MX integration gives Director MX developers access to the robust design and production environment of Fireworks MX, allowing developers to create graphics for presentations or Shockwave content. In addition, the tight integration between Fireworks MX and Director MX offers a roundtrip workflow between these graphic and multimedia environments. Integration features include launching and editing, Fireworks MX importing, launching and optimizing, and the Fireworks MX Import Xtra.

Accessible content

Director MX allows you to create content that meets internationally recommended guidelines and government accessibility requirements--including Section 508 guidelines. Director MX lets you add text-to-speech, captioning, and tab-navigation features to web-based Shockwave content or stand-alone applications on both Microsoft Windows and Apple Macintosh systems.

The cross-platform Speech Xtra makes Director MX applications "self-voicing"--that is, text is converted to speech without a screen reader. The user's operating system provides voices at the system level. You can create completely customizable, accessible content that doesn't rely on screen readers. Any user with Shockwave Player and an installed speech engine (which ships with current operating systems) can then use your accessible content.

Drag-and-drop accessibility behaviors in Director MX let you easily control speech and tab ordering, as well as synchronize text with spoken words, in order to repurpose existing Director applications to adhere to accessibility guidelines.

Enhanced power of Director

Director MX introduces many new features that improve on the renowned power of Director to create rich media multimedia content that can be deployed on CDs, DVDs, or corporate intranets--or to more than 300 million web users with Shockwave Player.

Advanced debugging capabilities enhance the power of Lingo, the object-oriented Director programming language. Director MX offers a streamlined professional debugging layout, with everything you need in one convenient place.

The unified Script and Debugger windows let you debug, browse, and edit scripts all in the same window. The Script window switches to debugging mode when a Lingo error or a breakpoint is encountered. You can edit scripts while in debugging mode.

New Script window buttons save you development time when you're working in Lingo. Among the buttons are a button that lets you inspect and debug code faster and realize better input responses when editing large files, a button that pinpoints debugging issues more quickly when working with others, and a button that organizes 3D Lingo commands separately from other Lingo commands for faster 3D debugging.

The Scripting Xtras window helps you organize your third-party scripting Xtra extensions more efficiently. The window detects all installed scripting Xtra extensions, gets their methods and properties, and organizes them in a convenient pop-up menu.

An Object inspector with data browser functionality lets you inspect all properties of script instances, and examine the hierarchy of elements inside 3D cast members and Flash MX sprites. The ability to quickly examine and modify all your movie components reduces both debugging and development time.

Color-coding of recently changed variables makes tracking changes quick and easy with immediate visual feedback. As you step through your code, the Debugger window displays the variables whose values have changed in red.

The split-paned Message window shows you the results of your code changes immediately. Now movies can execute and display information in the Output pane while you enter and execute Lingo commands in the Input pane.

QuickTime 6 support allows you to take advantage of QuickTime 6 features, including support for streaming MPEG4 video and MP3 audio.

CHAPTER 4

RESULTS AND DISCUSSION

This section explains the result and discussion of the findings or outcome of the project.

4.1 Findings

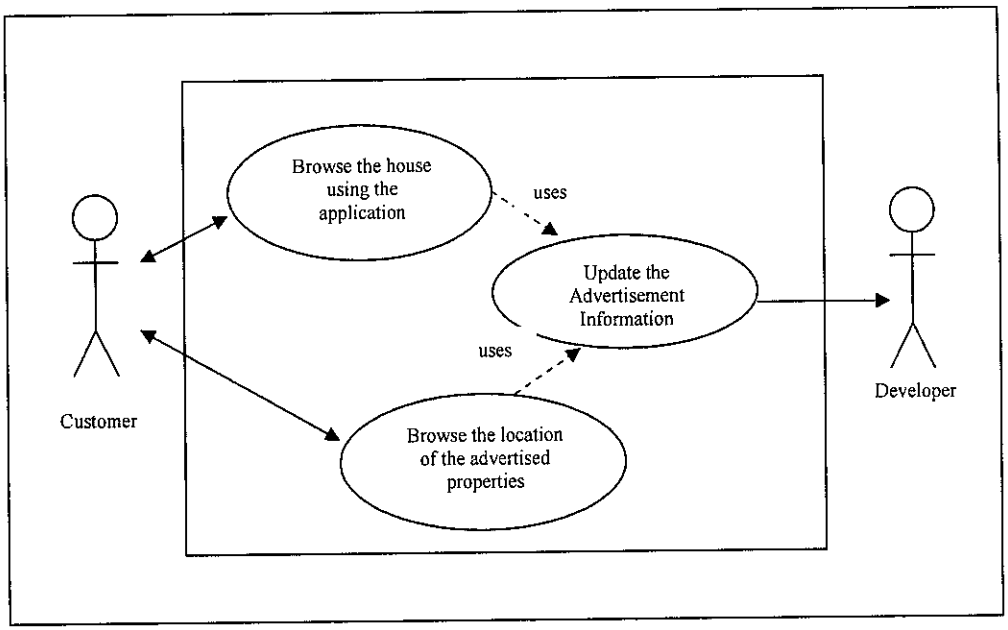


Figure 4.1: Use Case Diagram of Dream Home Multimedia Advertising

Assumption and Explanation of Diagram:

- The customer will use the Dream Home Multimedia Advertising application to browse the advertised house.
- The system will be updated by the developer's personnel to advertise their current properties
- The customer will also use the system to identify the selling properties with respect to their desired location.

Fundamental to any discussion of interactive advertising is the question of just how different it is from traditional advertising. Although the Internet, and other interactive media like interactive television, have been touted as more powerful, responsive, and customizable than traditional media, the empirical evidence suggests that consumers respond to much of the advertising on the Internet in the same ways they respond to advertising in more traditional media, at least with respect to traditional measures of advertising effectiveness.

Traditional measures of advertising effectiveness, such as recall, attitude change, and brand choice are only a part of the story of effectiveness of interactive advertising, however. Such measures are useful, but they are in the tradition of advertising research that focused on the advertising's influence on the consumer; these measures offer limited insight into what the consumer does to and with advertising. Research that begins with the perspective that advertising does something to consumers treats advertising as an independent variable and advertising response as the dependent variable.

The typical research paradigm involves a forced exposure to some advertising message followed by some measure of consumer response. If one accepts the proposition that people do things to and with advertising, the identity of independent and dependent variables is less obvious. Indeed, any response to advertising, including that of simply attending, may be contingent on a host of other factors. When people select that to which they attend, the act of attending becomes a powerful determinant of advertising response. The traditional paradigm for examining the effects and effectiveness of advertising has served the profession well, but it is incomplete in an increasingly interactive context. This suggests that there is a need for a new paradigm for the measurement of advertising effects.

This new paradigm must explicitly recognize the active role of consumers; message recipients must also be potential message seekers. At the same time, any new paradigm must be compatible with the accumulated body of research and theory that has dominated the advertising discipline for more than fifty years. The focus of this new paradigm must also be interaction with information not merely response to information.

During the project, the author has conduct research regarding the user-friendliness of the application with respect to the Human-Computer Interaction studies. These are the findings from the questionnaires given to 50 peoples, which is 15 student from University Technology PETRONAS, 20 buyers that interested to buy the house, and 15 developer's personnel. (Refer to Appendix 2 for the Questionnaires).

Table 4.1: User friendliness

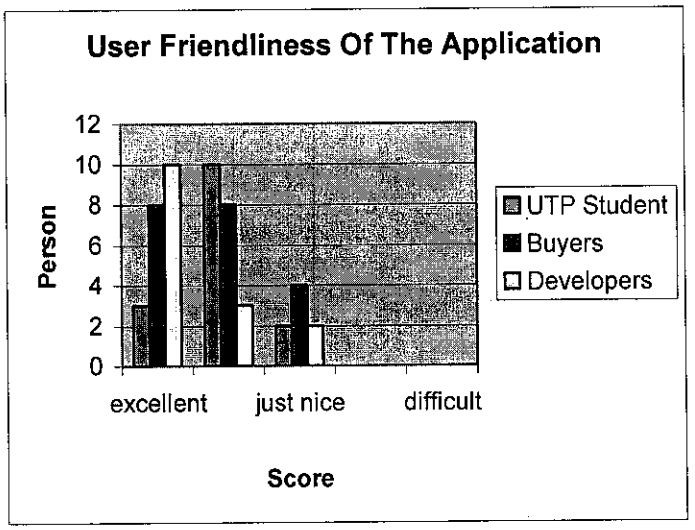


Table 4.2: Browser Categories Helpfulness in Finding Dream House

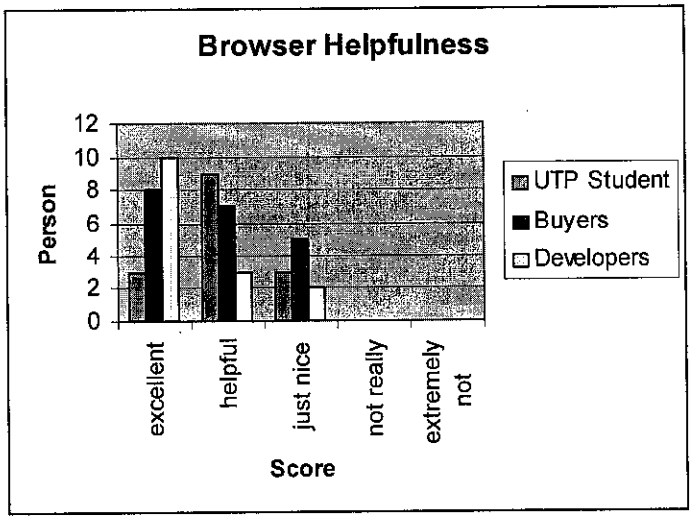


Table 4.3: Button Function Understandable Measure

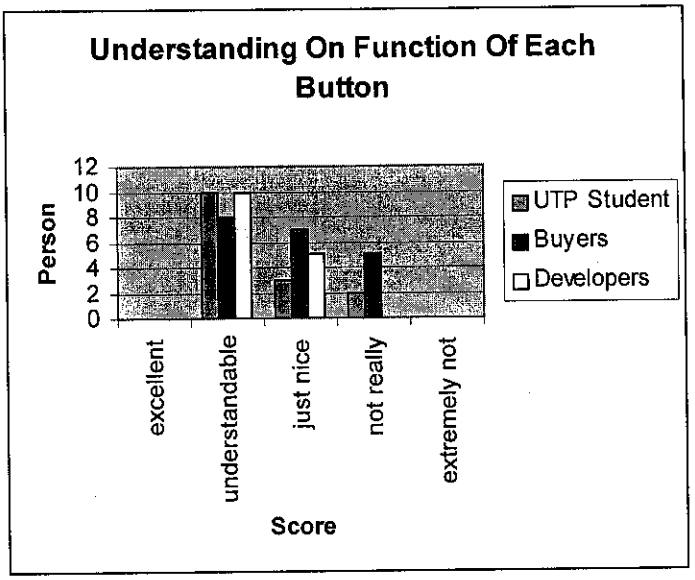


Table 4.4: Clearance of the Word and Sentenced Used

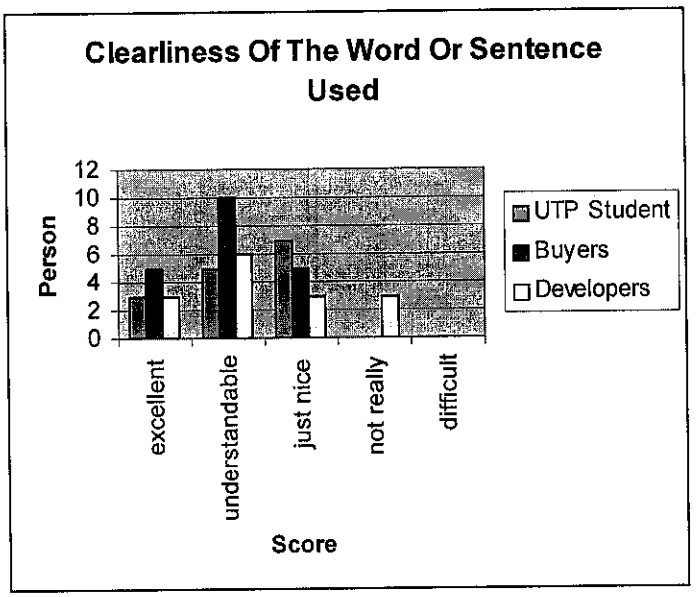


Table 4.5: Colour Used

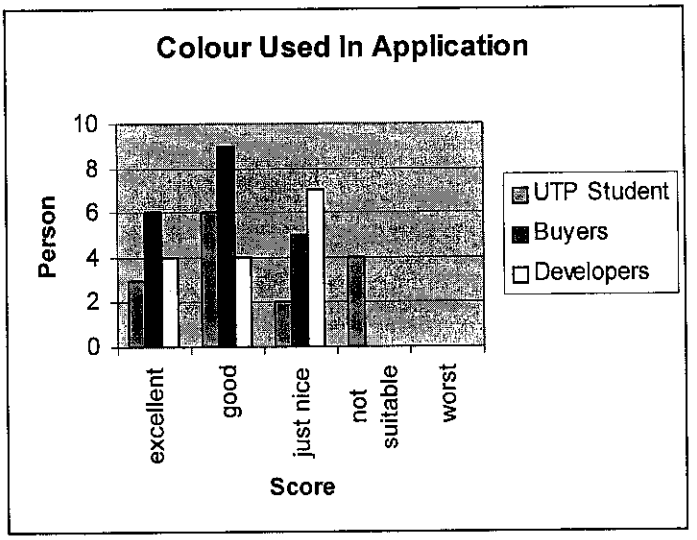


Table 4.6: Music Used

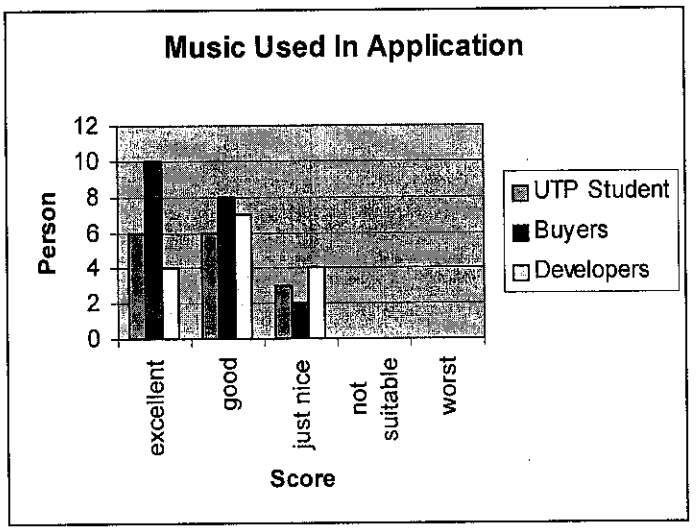


Table 4.7: Information Transparency

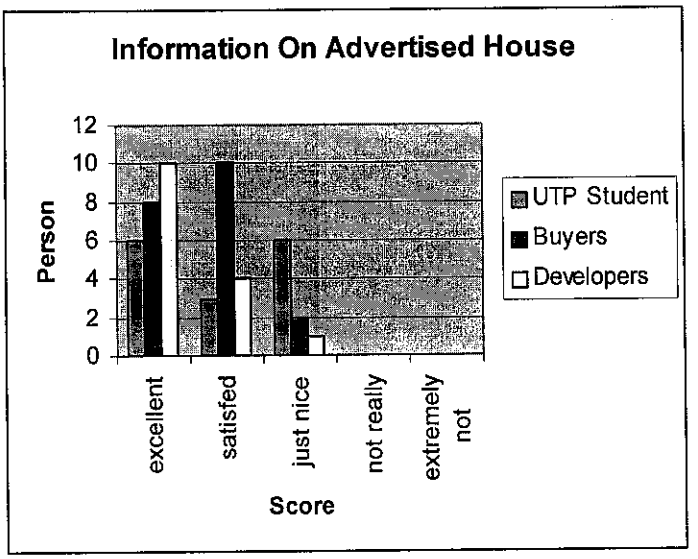
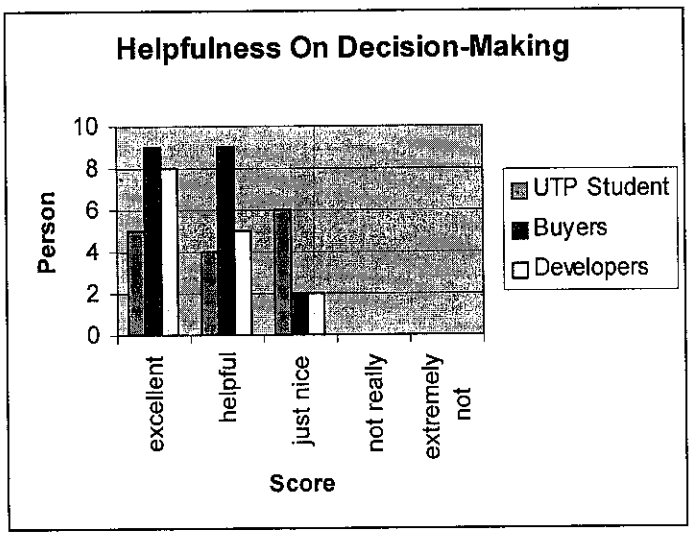


Table 4.8: Impact on Decision-Making Process



Further, there must be recognition that media are not inherently interactive. Media may off the potential for interaction, but it is ultimately the consumer who determines whether interaction actually occurs, and thus, whether advertising is or is not interactive. Interactive advertising is characterized by what consumers do, not by what marketers do or by characteristics of media. This means that research on interactive advertising must focus more on the person receiving the advertising than on the advertising or the medium. Research in information systems, which has long

focused on the interaction of people and information, provides a potential framework for reconceptualizing the measurement of advertising effects in a way that recognizes the active role of the consumer in determining whether interaction occurs.

From the prototype that being located in several developer's office and from customers most of the customers satisfied with the application. The application helped them in such a way that:

- The system can be browse in 3 ways of categories, which are the major element that attract the buyers to use it. They can browse by the location of the selling properties, the price range, or the type of the desired house.
- The system is really easy to be use, this is resulting from the Human-Computer Interaction research that being studied during the development of the application. It most of the user-friendliness aspects, considering the target users or potential buyers.
- Due to the minimum of costs, all the properties developer is currently using the application but only the part of their respective advertised selling site.

Interactivity is a complex and multidimensional concept and there is little agreement on a specific set of conceptual and operational definitions related to it (much of the discussion and debate is recent, prompted by the development of advanced interactive technologies such as virtual reality). We define interactivity as a characteristic of a medium in which the user can influence the form and/or content of the mediated presentation or experience. It is not dichotomous (a medium is not just interactive or not) but can vary in degree (from not interactive to highly interactive) as well as type (different aspects of the form and/or content that can be influenced by the user).

The degree to which a medium, or a mediated experience, can be said to be, and will likely be perceived as, interactive depends on (at least) five subsidiary variables.

The first variable is the number of inputs from the user that the medium accepts and to which it responds. Biocca and Delaney (1995) discuss a variety of user inputs, including voice/audio input (e.g., speech recognition systems that allow a computer to accept and respond to voice commands), haptic input (e.g., television knobs and

buttons and computer mice, joysticks, wands, etc. that record user commands via object manipulation), body movement and orientation (kinetic) input (e.g., data gloves, body suits, and exoskeletons that translate body movements into electronic signals a computer can use to "fit" the user in a virtual environment), facial expressions and eye movements, and even psychophysiological input (e.g., heart rate, blood pressure, muscle tension, skin resistance, and brain waves could be input to a computer for mood management or enhanced mediated interpersonal communication). The extent to which each of these media input channels contributes to interactivity has not been demonstrated.

The number and type of characteristics of the mediated presentation or experience that can be modified by the user also help determine the degree to which a medium can be called interactive. Steuer (1995) identifies the dimensions of temporal ordering (order of events within a presentation), spatial organization (placement of objects), intensity (of volume, brightness, color, etc.), and frequency characteristics (timbre, color). Others might include size, duration, and pace. Heeter (1992) suggests that a highly responsive virtual environment is one in which many user actions provoke even unnatural responses (e.g., entering a room produces verbal or musical greetings or rain). While it remains unclear which modifiable characteristics are most important, a greater number of the characteristics should generate perceptions of greater interactivity.

A third variable is the range or amount of change possible in each characteristic of the mediated presentation or experience. Interactivity is enhanced by expanding the degree to which users can control each attribute of the mediated experience. For example, in a highly interactive virtual environment the user can look out in any direction; move over large distances in each one; proceed at any pace and in any sequence desired; pick up, feel, and move many different objects each with different textures; and change the type and volume level of ambient sounds. In a different context, the larger the vocabulary of a computer speech recognition system (i.e., the more words it recognizes and to which it responds appropriately) the more interactive is the computer use experience.

A fourth variable is the speed with which the medium responds to user inputs. The ideal interactive medium responds in "real time" to user input; the response or lag

time is not noticeable. Although it accepts and responds to only audio input and uses only a limited frequency range, the telephone is highly interactive in terms of this criterion because interactions via telephone seem to occur in real time (except with calls over exceptionally long distances). With bandwidth limitations and explosive growth in the number of users, the issue of response time is an important consideration on the World Wide Web (often derisively called the World Wide Wait). The computational difficulty of processing inputs related to the user's position can cause even an advanced virtual reality system to present images and sounds that lag quite noticeably behind user movements and the problem is recognized as an important one: Heeter (1992) notes that "based on their own experiences and observations of others," when forced to choose between "responsiveness to motion and resolution of images, [virtual reality] developers are choosing responsiveness as the more important factor".

A final variable that may be important for interactivity (and certainly is for presence - see below) is the degree of correspondence between the type of user input and the type of medium response. Steuer (1995) suggests that the "mapping" between these two can vary from being arbitrary (e.g., pressing a sequence of keys on a keyboard to adjust a visual display) to natural (e.g., turning one's head in a virtual reality system to see the corresponding part of the environment). Using "our familiar sensorimotor skills to manipulate virtual objects directly by means of whole-hand input devices" may lead to perceptions of greater interactivity, and "naturalness," than "writing programs, twisting knobs, or pushing a mouse to accomplish the same task".

Issues on the ethical implementation of an “intelligent” advertising:

- Storage of Information: The privacy of the information stored must be maintained as it might be embarrassing or may lead to disastrous effects. The data might also belong to somebody else who does not wish it to be publicized.
- Sharing of information: Information itself has value and can be sold if it is not shared to those who are directly involved in the maintenance of the system.
- Use of information: The information must be used only for the purpose mentioned and not for something else.

- Human Judgment: Human judgment must be used properly in overall decision process as it involves the competition in business. It is important to allow house developers to review the system recommendations that are not totally structured, in other word, to have decision support system rather than a decision making system.
- Error Detection and Corrections: Information System should always incorporate procedure to prevent errors, for verifying the information in them, and for correcting errors that are detected.

4.2 Discussion

In general, the goals of interactive advertising tend to be similar to the traditional objectives of advertising. This means that many of the traditional measures of advertising effectiveness remain relevant, even in a world of interactive media. However, interactive advertising also has some properties that expand the range of potential objectives and that facilitate the acquisition of traditional measures of advertising effectiveness. Interactive advertising also has the potential to lessen the 'process loss' associated with uncoordinated advertising, to reduce the difficulties commonly encountered in clearly communicating an advertising message and to help overcome resistance to new products.

Human-Computer Interface Design seeks to discover the most efficient way to design understandable electronic messages in this project. The browser in the application is a result of interface design - the buttons and menus have been designed to make it easy for buyers to help them in browsing the Dream Home Multimedia Advertising. The author has followed the Shneiderman's Principles in designing the User Interface of the application.

Shneiderman's Principles of Human-Computer Interface Design:

Recognize Diversity - In order to recognize diversity, the author has take into account the type of user frequenting the application, ranging from novice user, knowledgeable but intermittent user and expert frequent user. Each type of user expects the screen layout to accommodate their desires, novices needing extensive help, experts wanting to get where they want to go as quickly as possible.

Accommodating both styles on the same page can be quite challenging. The author addresses the differences in users by including both menu or providing an option for both full descriptive menus and single letter commands.

The Use of "Eight Golden Rules of Interface Design":

1. Strive for consistency

    - consistent sequences of actions should be required in similar situations
    - identical terminology should be used in prompts, menus, and help screens
    - consistent color, layout, capitalization, fonts, and so on should be employed throughout.

2. Enable frequent users to use shortcuts

    - to increase the pace of interaction use abbreviations, special keys, and macros but in this application, the author provide with simple button to browsing the application.

3. Offer informative feedback

    - for every user action, the system should respond in some way - for example, a button will make a clicking sound or change color when clicked to show the user something has happened

4. Design dialogs to yield closure

    - Sequences of actions should be organized into groups with a beginning, middle, and end. The informative feedback at the completion of a group of actions shows the user their activity has completed successfully

5. Offer error prevention and simple error handling

    - design the interface so that users cannot make a serious error, but this is not really applied in this application since users do not have to fill in any form.

6. Permit easy reversal of actions
7. Support internal locus of control

- Experienced users want to be in charge. Surprising system actions, inability or difficulty in obtaining necessary information, and inability to produce the action desired all build anxiety and dissatisfaction

8. Reduce short-term memory load

   - A famous study suggests that humans can store only 7 (plus or minus 2) pieces of information in their short-term memory. During the development, the author reduce short term memory load by designing screens where options are clearly visible, or using pull-down menus and icons

Prevent Errors - The third principle is to prevent errors whenever possible. Steps can be taken to design so that errors are less likely to occur, using methods such as organizing screens and menus functionally, designing screens to be distinctive and making it difficult for users to commit irreversible actions. Expect users to make errors, try to anticipate where they will go wrong and design with those actions in mind.

Since the application will help buyers in their decision making process, the design of the Dream Home Multimedia Advertising should:

Use both knowledge in the world and knowledge in the head. Knowledge in the world is overt - buyers don't have to overload their short-term memory by having to remember too many things (icons, buttons and menus provide them with knowledge in the world). On the other hand, while knowledge in the head may be harder to retrieve and involves learning, it is more efficient for tasks that are used over and over again (providing a command key sequence like Esc for Exit the application is an example of this).

Make things visible, including the conceptual model of the system, the alternative actions and the results of actions. The application provides an overview map of the purpose of the advertising so that user can design their own mental map of how things work.

Make it easy to evaluate the current state of the system. This can be shown in the application when it will provide feedback in the form of messages or flashing buttons.

Follow natural mappings between intentions and the required actions, between actions and the resulting effect; and between the information that is visible and the interpretation of the system state. For example, it should be obvious what the function of a button or menu is - use conventions already established for the application, and the author avoids designing something that changes what people are familiar with.

At the same time, interactive advertising also has the potential to increase the efficiency and quality of consumers' decisions, increase customers' involvement and satisfaction, and promote trust through reciprocity in information exchange, technical assistance, and reduction of information asymmetry. Finally, marketers can use feedback from consumers to improve their advertising message and intended target, and strategically adjust their customer support, product line, and services provided. Interactive advertising may also produce greater efficiency, trustworthiness, and quality in advertising. Thus, interactive advertising has the potential to fundamentally change the nature of advertising in much the same way that electronic communication infrastructure has changed the nature of group interaction.

Interactive media of various types not only opens new opportunities for communication with and among consumers, it also creates opportunities for creating new measures of consumer response to such communications, as well as to product offerings and other marketing initiatives. Interactive media shift control of the information flow from the marketer to the consumer. This provides many more options for responding to information than previous forms of marketing communication, and it is the response of consumers to these options that provides the basis for new measures of consumer response. For example, providing consumers with the opportunity to search for more information about a product, as is done at many Internet sites, provides an opportunity to monitor the types of information and products that consumers seek at both an individual and aggregate level.

To illustrate the power of interactivity, consider the following scenario: a manufacturer of a product offers a description of a product concept. Information about this concept can be obtained by consumers in an interactive environment through an interactive search of various branching trees of information offering more and more detailed information about the product concept. Note that the intensity of search for information (measured by click through rate) can become a surrogate for interest in the product. Indeed, because such search involves deliberate and active decisions by the consumer, it is likely that measures of the breadth and depth of information search will be far better predictors of product interest and eventual purchase behavior than measures currently in use.

It is very likely that measures of intensity of information search bears a strong relationship to product interest and, in turn, to product purchase. Further, interactive media provide the opportunity for direct customer feedback regarding product modifications, likes and dislikes, and improvements. Evaluation of product concepts is but one potential opportunity for using the power of interactive media. By tracking the types of information users of interactive media seek it should be possible to determine the information that consumers find most useful when evaluating a product. Indeed, examination of the information search patterns of users of interactive media may inform positioning decisions. Information provided by the consumer to the marketer can provide a means for customized offers and customized advertising. Indeed, fully interactive advertising would provide the consumer with the opportunity to request information, not simply respond to what is provided by the advertiser.

While the potential of interactive media is clear, much remains to be done to realize that potential. For example, numerous measures of intensity of search for information (click-through rates) might be constructed which vary in their capacity to capture the depth and breadth of search. There is also the important issue of establishing a link between such measures and more traditional measures of purchase interest and intent. In addition, new issues arise in the context of interactive advertising that do not arise, at least to the same extent, in the context of traditional advertising.

Finally, there are issues of satiation of response that arise in the context of measures based on interactive media that do not arise with more traditional measures.

Consumers have only limited time and resources, and therefore, are unlikely to be able to sustain large numbers of on-going interactive relationships.

One of the more explosive growth areas of the World Wide Web is the opportunity it affords for advertising, and with courses ranging from "Rhetoric of the Road" at the University of Texas-Austin to "Slacker Selling" at the State University of New York-Cobleskill, today's customers are in the driver's seat. Multimedia-based advertising can run the gamut from text-based, interactive images, correspondence-type media to full-blown interactive multimedia presentations. The vast majority of advertising more closely resembles the text-based model, but we are beginning to see video, audio and even some interactivity in many offerings. Of particular interest are the newer interactive multimedia technologies found on the Web (Java, VRML, Shockwave, etc.), their use in advertising delivery, the challenges these technologies present to both developer and consumers, and how these challenges may be overcome.

What's new and fascinating about applets like these is that they offer hard-to-do simulations of physical events, are free to the user, can be demonstrated on a variety of computer operating systems (Mac, Windows, etc.), are highly interactive, and can be accessed at any time by anyone in the world with an Internet connection. The good news for developers is that for the first time we have an innovative mix of technologies that makes advertising delivery over the Web a very potent commercial force.

A fascinating glimpse of the power of multimedia to positively impact advertising can be seen in the world of commerce. Laws of human-needs that run counter to customers' common sense notions of how the world works provide a stimulating catalyst for further investigation. In "The Initial Knowledge State of Multimedia In Advertising" demonstrated, for example, that freshman advertising personnel's' intuitive notions of the behavior of a customers need and their decision making factors, a major topic in advertising. Other research indicates that these misconceptions may be overcome through the use of video and animation. The research indicated that customers using these multimedia supplements to help their decision making process did significantly better on their satisfaction than people who did not use them.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

This report has laid down the basic idea of the project, which may be used a guideline for the project. Further improvements and additions will be made in identifying the right tools, necessary methodology to be follow, and using the most innovative interactive multimedia designing tools in order to make the project, Dream Home Multimedia Advertising achieve Human-Computer Interaction objectives.

The practical implementation of Dream Home Multimedia Advertising is considered necessary in order to upgrade the technology capabilities our commercial properties developer in order to increase customers' satisfaction and help them in decision-making during the buying process.

Concepts of Interactive Multimedia Advertising, descriptions of each process in developing the application, instructional design, and research on Human-Computer Interaction between the users and the applications combined to create the Dream Home Multimedia Advertising that help the consumer to gather knowledge and introduce them with the house by merging the expressed needs of the customers or buyers with the possibilities of multimedia technology.

As communication technologies evolve, becoming more interactive, personal, and sophisticated, advertising is being forced to evolve as well. Early research and theory regarding the concept of presence provide a valuable framework for developing effective advertising techniques and messages in this new media world.

Most of the presence-based guidelines for the design of new media advertising set out in Table 3.2, and in the examples that follow it, involve the use of sophisticated but currently available web- and PC-based technology. It's important to note, however, that even less sophisticated (and costly) techniques are likely to evoke presence and its desired effects. While considerable additional research is needed, it is clear that very basic cues (e.g., direct address "camera" techniques, presence-related language,

primitive forms of interactivity) are all that are necessary to evoke presence. On the other hand, it is important to consider the future: We foresee that this intersection of interactive advertising and presence will become increasingly relevant as technology (especially the foundation of much of it, bandwidth capacity) quickly evolves and the use of realistic, dimensional imagery, artificial intelligence, and virtual reality become more common. One day in the not-so-distant future, consumers may use a dedicated room in their homes to interact, using all of their senses, with real people and highly sophisticated (and seemingly nonmediated) technology-generated characters and environments, something approaching the ultimate VR and artificial intelligence systems portrayed in science fiction (e.g., *Star Trek*'s Holodeck and Data character). In that world, advertisers will be able to offer consumers any experience with their product and any interaction with their company's representatives (real or technology-based) that they choose.

The potential of current and future technology to enhance consumers' media experiences is exciting, for them and for advertisers who want to design effective persuasive messages. However, there are clearly ethical dilemmas. Presence-evoking media advertising gives new meaning to "deceptive advertising." We hope to see these technologies used to provide users with a more enjoyable media experience and with more choices as consumers. We do not hope to encourage the use of presence-evoking interactive advertising to merely create the illusion of choice - a very undemocratic ideal.

Dream Home Multimedia Advertising was an exploration into the role of multimedia, content, and the audience who participates in the buying process. By exploring the social context of the multimedia interaction, this project blended principles of Human-Computer Interaction with the traditions of interactive multimedia. The results were an interactive advertising application, an animation presentation, and a User Friendliness Study, all presented within the context of a limited 3 months exploration of the Final Year Project.

Recommendation

In designing a better Dream Home Multimedia Advertising, there are some recommendations that might give a better result in the end. First of all, the overview and the planning of the research should be organized properly. The implementation of chosen methodology, in this case SDLC, should properly plan before working on it. For the development of the multimedia application, even the definitions of interactive advertising and of presence are still being discussed and debated by researchers and practitioners, and our understanding of phenomena related to each and of the connections between them are at a very early stage. This presents a myriad of opportunities and challenges for all of us. Through carefully designed and coordinated programmatic studies, researchers can help us better understand what interactivity is, which factors are most important in generating perceptions of interactivity, what presence is, its antecedents and consequences, and how it can provide the basis for effective advertising. Researchers also have an ethical obligation to explore the potential negative effects of interactive advertising, including distorted perceptions and memories about the "real" world; they can also help develop and test the new "media literacy" materials that will be needed to overcome such effects. Until our knowledge is more complete, advertisers and technology developers will have to move ahead cautiously, trying new things and testing for the desired effects. And consumers can and should play a role as well: we need to let advertisers know what we like and don't like, what we want and don't want. If this project is going to be continued by other student next year, it is recommended that the student needs to planned the work in detail before attempted to conduct any development. For this project, the respective properties developers or site owner need to be contact first in order to obtain their permission to enter the site location. A lot of software used in designing the interactive multimedia development need to be studied to enhances the quality of the application. It is recommended to introduce this application to the users, in this case, the target buyers, since during the first stage of development, which is in defining user-problem phase, to maximise the user-friendliness characteristics of the application.

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APPENDIX 1: GANTT CHART- WORK PLAN FOR FINAL YEAR RESEARCH PROJECT, JANUARY 2004

No.	Detail/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Selection of Project Title - Topic assigned to student: **"Dream Home Multimedia Advertising"**														
2	Preliminary Research Work - Introduction - Objective - Methodology - Literature review ▪ Internet source ▪ Journals - Project Process Flow Chart - Suggestions and Scope of Study														
3	Submission of Preliminary Report (Initial Proposal)														
4	Project Work - Reference/Literature - Tools and Software Identification - Familiarization with necessary tools and software will be used during the projects - User Interface Design														
5	Submission of Progress Report														

No.	Detail/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	Project Work Continue - System Design - Human-Computer Interaction research														
7	Submission of Dissertation Final Draft														
8	Oral Presentation														
9	Submission of Project Dissertation														

Legend: **Work Plan**

Submission Date

APPENDIX 2: QUESTIONNAIRES

Age:

Location:

Profession:

Buying a house: Yes / No

1. From your opinion, is this multimedia application easy to be used?

1	2	3	4	5
difficult	not really	just nice	user-friendly	excellent

2. How do you find the browser categories, is it help you to find your dream house?

1	2	3	4	5
extremely not	not really	just nice	helpful	excellent

3. Do you know all the function of each button in this multimedia application?

1	2	3	4	5
extremely not	not really	just nice	understandable	excellent

4. Can you read all the words or sentences clearly in this multimedia application?

1	2	3	4	5
difficult	not really	just nice	understandable	excellent

5. How do you find the colors being used in this multimedia application?

1	2	3	4	5
worst	not suitable	just nice	good	excellent

6. Do you think the music is suitable to be used for this advertising purpose?

1	2	3	4	5
worst	not suitable	just nice	good	excellent

7. Do you satisfy with the house information shown in this multimedia application?

1	2	3	4	5
extremely not	not really	just nice	satisfy	excellent

8. Generally, do you think this multimedia application helps you in your decision making process?

1	2	3	4	5
extremely not	not really	just nice	helpful	excellent