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# The Use of Hypermedia to Enhance Corporate Image: Does It Work?

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**ABSTRACT**

The Use of Hypermedia to Enhance
Corporate Image: Does It Work?

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This study compares the relative effectiveness of two media--videotape and hypermedia--in disseminating information about a corporation. A post-test only experiment, including a control group, was conducted with Communication students. The treatment consisted of exposing volunteers to an Ameritech corporate advertising videotape or a hypermedia program with the same content. Four hypotheses regarding individuals' recall and their attitudes towards the company, the content and the media were tested. Significant findings for future research are that attitude towards the content was positively influenced by the use of hypermedia and that the type of medium subjects were exposed to did influence their suggestion for adopting one medium versus another in the presentation of the message.

**To**

**My mother and my family who, even being so far, gave me all the support. Specially to my husband, for believing in me, for being so patient and for always being there for me**

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# Chapter One

## Interactive Communication: The New Competitive Advantage

The need for corporations to communicate--to listen and be heard --is greater today than ever before. Businesses face new challenges and opportunities with the involvement of a broader variety of audiences and the introduction of more media channels. The major factor of competitive supremacy seems to have shifted, in fact, from the capacity to offer better products to the ability to communicate a competitive advantage to target audiences. Traditionally, companies cope with this dynamic and competitive environment by adopting a limited number of strategic positions: a) be innovative and develop new products and services, b) create new attributes/uses to products and services or c) find a new market segment to target products and services (Peter & Donnelly Jr., 1994).

In any of these circumstances, however, it is imperative that information about products and services reaches the public. Depending on how, when, and the way this communication is handled, it may translate into competitive advantages in the marketplace. Besides communicating to the public about their products/services, companies have also used corporate advertising to enhance corporate image and awareness in an attempt to influence their position in the consumers' mind and hopefully influence their choices. No

matter what is the line of business companies are, whether the goal is to sell, educate or inform, the ability to communicate and persuade is becoming more and more fundamental.

## 1.1 The Purpose of This Study

The present study is aimed at exploring the use of hypermedia to enhance corporate image. The purpose of this study is to compare relative effectiveness of two media—videotape and hypermedia—in disseminating information about a corporation. The power of hypermedia to facilitate dissemination of information and understanding of a variety of themes by using a combination of text, video, animation, and audio messages in an interactive way, will be measured and compared to that of a traditional medium, videotape. Thus, the influence of the independent variable medium used to deliver the message (format of information) will be studied through an experiment.

The overall hypothesis guiding this study is that hypermedia systems are more effective than the videotape medium, when the same content is presented and there is a low involvement of the audience, such as when presenting information about a corporation. Reasons for a differential effect include the "innovative" image associated with new, compared to traditional media, as well as the difference in

media characteristics between non-linear, choice-driven content compared to single, long, linear message.

The Elaboration Likelihood Model (ELM) will be used as a theoretical framework. According to this model, even in situations when people are presented with messages about products/services that are not personally relevant to them, or even when people have not the ability to fully understand a message, there are peripheral factors that can influence people's evaluation of the ad itself, of the product, brand or company being presented. As stated by the ELM, there is a variety of message factors that can affect a person's ability and/or motivation to process the message information. The modality of message information is one of the factors. Thus, the use of this model is appropriate for the purpose of this study. A more detailed description of the model will follow in Chapter 2.

## 1.2 The Rise of Consumer-oriented Marketing

The increased importance attributed to communication and persuasion has been traced by the historical evolution of marketing practices (Schiffman & Kanuk, 1991). In the years following World War II, marketers adopted a production-orientation strategy, that is, efficient production and intensive distribution. This is considered a successful strategy when demand exceeds supply and when consumers are more concerned about obtaining products than with their

specific attributes. With the market becoming more competitive, there was a need for a strategy shift, from production orientation to product orientation. The bottom line of this strategy is that consumers will buy the highest quality product available to them; the focus is on the product, not on the needs and wants of the consumers. As a result, some products were improved, but consumers would not take advantage of all the features because it was more a product driven improvement, not a response to consumers' needs. Finally, some companies decided to adopt a selling orientation, shifting the focus from adding product features to selling products. Still, the center of attention was not the consumer, since sellers would push products regardless of consumers' actual needs. It was just in the late 1950s that marketers realized that the consumers had the power to determine their success. This consumer-oriented marketing strategy is today known as the marketing concept. According to Schiffman and Kanuk (1991, p.14), the key assumption underlying this concept is that "to be successful, a company must determine the needs and wants of specific target markets and deliver the desired satisfaction better than the competition".

With the adoption of the marketing concept, the demand for research on consumers' behavior and reaction to advertising messages increased. Advertising seeks to promote marketers' products and services. Messages can reach a large number of people and inform, persuade, remind them about the company

and what it has to offer. Advertising, therefore, can be considered an important device that is capable of gaining or maintaining a competitive advantage in the marketplace. It is an influence that might affect the consumers decision to purchase brand A instead of brand B or choose the service of company X instead of company Y, thus influencing consumers' affect and cognition. To better understand the effects of advertising, researchers study the relevancy of a variety of factors such as exposure, repetition, involvement, attention, distraction, and persuasion, just to name a few.

### 1.3 The Power of Persuasion

Persuasion is probably the main goal in advertising. It refers to the cognitive and affective processes by which consumers' beliefs and attitudes are changed by promotion communication (Peter & Olson, 1990). An overview of the communication/persuasion process consists of first exposing consumers to ads; this exposure can lead then to retention of information presented in the ad and/or feelings aroused in the audience. The combination of information and feeling can in turn affect the consumers' attitudes and hopefully their behavior. There are different ways to persuade, and the understanding of the process through which advertising influences attitudes has been an important focus of consumer research. Attitudes can be formed and changed through different processes, and social and cognitive psychologists

have a number of models of information processing and attitude change that propose to explain how persuasive communication works. Multiprocess theoretical orientations, such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986) include some of these models. Such theoretical orientations make a distinction between features that convey information about the product/service called substantive features, and features that usually do not give consumers product information (non substantive features) but might also influence attitude formation and attitude change (Heath,McCarthy, & Mothersbaugh, 1994). The effects of these features will depend on factors such as how involved consumers are and their ability and motivation to think about the information provided to them.

Later studies have indicated that attitude toward the ad itself is also an important element of these theories because it leads to changes in brand attitudes (Lutz,Mackenzie, & Belch, 1983). It should be safe, therefore, to extrapolate and conclude that attitudes toward a corporate advertisement have an impact on attitudes toward the corporation. Since the time when McLuhan (McLuhan & Fiore, 1967) stated that "the medium is the message," the synergy between medium and message has only become more controversial, and the traditional communication process, with an emitter, one channel and a receptor, has suffered many revisions (Heeter, 1986). According to Hans Johnsson (1990), when McLuhan said that "the medium is the message", he was trying to call our

attention to the fact that, depending on the communication tasks, different media have different characteristics that make them more appropriate depending on the situation. Also that:

> the medium itself influences the users, the senders and the recipients, and colours the information or communication process in such terms as emotional value, credibility, suitability to convey facts, capacity to 'trigger action' and several other factors. To some extent, the medium becomes the message (p.334).

## 1.4 Interactive Media: a New Channel

There are different categories of media available today and many media alternatives within each category. Advertisers must select a media category that will enhance the message they wish to convey and ads should be placed in the specific media that can reach their selected target markets. Media selection depends on the product/service to be advertised, the market segment or segments to be reached, the advertising objectives and the budget available. The strategy adopted most often is the use of one category as a primary channel with other categories providing support. According to Schiffman and Kanuk (1991), media are undergoing demassification and what was once a mass audience has been broken down into smaller groups. In response to this

segmentation, the number of programs available on cable TV, magazines and new radio networks has increased (Schiffman & Kanuk, 1991). In an editorial of the Journal of Advertising Research, Dr. Cook (1993) points out that:

> Creativity in media selection has contributed to successful advertising as long as there has been advertising. In this age of increased competition, media creativity has to be more consistently delivered [and there is a need for] an increased readiness to step beyond old formats and methods to find more viable solutions (p.7).

The traditional media will still be used by advertisers years to come, there is no doubt about it. But new ways of doing business are emerging: interactive media is here, it is a fact and it is going to impact marketing communications. Until this new channel is assimilated and incorporated, people are trying to answer questions on how to use it, when, why, where and who should be using it. The number of new media companies is still increasing, counting on the fact that a number of advertising agencies are not appropriately prepared to fulfill the requests or needs of clients that want to stay ahead. Traditional agencies, fearing they might lose clients, begin training and/or hiring professionals to do the job in-house instead of having to hire outside companies to do it. The advertising industry expects that it

would be able to internalize this activity to its current operations making interactive media just another element of the promotional mix. According to advertising professional Larry Dexheimer, a partner at Messner Vetere Berger McNamee Schmetterer/Euro RSCG of New York:

> There are two vectors coming at this in different ways, and agencies will win because interactive is just another medium and technology won't drive its success--strategic marketing will (Cleland, 1995).

On the part of advertisers, it is vital to them to also be updated about new options. But this may take longer than one would expect. Of the top 50 U.S. advertisers contacted by Advertising Age magazine for a special segment on interactive media industry, only five had dedicated interactive executives or units to marketing each company's brands via new-media platforms. But this should not discourage the new media industry. According to Scott Donaton, Executive Editor of the Interactive & New Media, a section of Advertising Age:

> Whether or not marketing communications will be dramatically transformed by the digital revolution is no longer a point in dispute. The questions now are how they will be impacted and how marketers will change the way they do business (Donaton, 1995).

Even though few empirical studies exist to test its effectiveness, today it is very unlikely that an issue of Advertising Age, Newsweek, Time, The New York Times, just to name a few examples, will not have an article about the interactive industry. New magazines specialized in the topic are being created. Conferences and seminars are held all over the world. New journals focusing on hypermedia, multimedia and virtual reality are also emerging such as Multimedia Review, Hypermedia, Journal of Educational Multimedia & Hypermedia. But the approach of the studies published in these journals is basically from the educational point-of-view. It is the belief of this researcher that more studies are needed, the focus not being as much into the educational area, but also into business uses of hypermedia.

A special issue of Advertising Age's Interactive Media and Marketing section was dedicated to the new industry (1995). According to the magazine's research, the interactive industry is composed of different segments such as video games, CD-ROMs, commercial online services, home shopping, infomercials, interactive 800-numbers, Internet, kiosks, virtual reality, and interactive TV. In the future, these segments might not be clustered under the same industry as some might grow more than others. But, so far, all segments together added up $11.1 billion in revenues in 1994 (1995).

Today, even though companies are still being cautious, advertising agencies, publishers and marketers are all at

least thinking about how this industry might impact their business lives.

### 1.5 Hypermedia: New channel, Same rules

Hypermedia and multimedia have become buzzwords in the trade press. It used to be that a communication system would make use of a simple medium to transmit messages in only one way. Newspapers use text and some still pictures, radio uses sound, and television--the most versatile of all--uses live video/sound. All communicate, however, in a one way, without a full interaction of the recipient (reader, listener, viewer). Hypermedia systems started to invade a variety of markets with a combination of at least two of the following items: text, graphics, animation, still picture, motion video and sound. Controlled by a computer, the various media also offer interactivity, that is, instead of just receiving a predetermined message, people can participate in the elaboration of the message, they can--as the new jargon goes--"navigate through information."

Hypermedia has been celebrated as a new way of transmitting information, a new way of learning. The more people use hypermedia applications, the more they exercise their decision-making ability to choose their own pace and route of learning and, hopefully, the more motivated they will be to learn. In this sense, the process might also influence people's attitude towards objects, products, services or

companies. Since its conception a little less than a decade ago, hypermedia has been increasingly used by a variety of professionals, mostly for education and training purposes. Point-of-sales and point-of-information systems have been developed to a lesser extent, but this scenario is now changing. Marketing managers, advertising and public relations professionals are starting to realize the potential of hypermedia to deliver their messages to consumers and citizens alike. The learning process offered by hypermedia can be helpful to describe complicated features of a product for sale, or to disseminate information about a corporation. Ameritech is an example of a corporation that lately decided to adopt such new technology to enhance its corporate image.

### 1.6 Ameritech in The Digital Era

The telephone industry that could once be almost considered a monopoly has gone through considerable transformation in the past quarter of the century. Extensive deregulation brought up new companies with new business aspirations. As one of the largest telecommunications companies in the United States, the Ameritech* Bell Group is also seeking to expand its line of business. Originally, it provided exchange telecommunications and local exchange access service for business and residential customers in the Midwest. Throughout out the 1980s the RHCs (regional holding company) fought to

* In 1991 the company formally changed its name to Ameritech.

enter new lines of business. In 1992, the FCC allowed phone companies to transmit television signals and also cable companies to get into the phone business, and Ameritech is not stopping there. With the Telecommunications Act of 1996, Ameritech initiated plans to become a long-distance telephone provider and enter many other new markets.

Ameritech's goal is to be known as the best full-service communications company. In order to do so, it is moving aggressively into software, information services, games and entertainment that will reach consumers via their television set and/or personal computer. The pace at which businesses and consumers are using electronic information exchange is accelerating and basing its business in the marketing concept, Ameritech has been focusing on meeting consumer demands and addressing consumer needs. Providing reliable access to information and developing new uses for it are two of Ameritech goals (1991).

In the education arena, Ameritech companies in conjunction with the Ameritech Foundation have been providing support for education, through advanced telecommunication technologies, volunteer services and grants. Collectively, they contributed more than $10 million to education in 1991. Educational services such as distance learning using interactive video, distance learning using voice and data lines, education hot lines, multiple location networking, and Ameritech Digital Centrex (integrates individual schools in an efficient telecommunication network) are examples of Ameritech

increasing involvement in the development of technology for instruction. The company's philosophy is that "telecommunication helps make available opportunities for learning by creating interactive information exchanges" (1991).

### 1.6.1 The SuperSchool Project

Access to electronic information is changing the classroom. Using different forms of technology, teachers and students can take more advantage of the learning process. Ameritech have been trying to show educators how new techniques and the implementation of communications technologies can help enhance the effectiveness and efficiency of education. In the SuperComm/ICC 92 held in Chicago, one of the world's largest telecommunication exhibitions and international conferences, Ameritech had a display with demonstrations on how technology can make a difference for schools on its project "Ameritech SuperSchool: Unlocking the Future of Education Through Communications Technology." This project represents a portfolio of communications solutions that--the company defends--can increase the quality of education.

Ameritech has produced a video to present its project to schools administrators, teachers, and senators, in an attempt to get funds to help implement the project in as many schools as possible. In 1993, Ameritech hired the Communication Technology Laboratory at Michigan State University to develop

a hypermedia version of the video with basically the same content. Besides taking advantage of hypermedia technology, which will be discussed in the next chapter, it is believed that the use of updated technology might enhance people's perception of Ameritech as a modern company.

# Chapter Two

# Literature Review

The present study is designed to compare how effectively two different media vehicles, videotape and hypermedia, deliver information about a corporation. The conceptual framework employed in this analysis draws from well-established theories on attitude and persuasion, with particular emphasis on the Elaboration Likelihood Model. In this sense, a review of the literature will include the importance of attitude on the persuasion process and the use of peripheral cues in the process of attitude change.

## 2.1 Attitude

One of the most important concepts in the study of consumer behavior is consumer attitude (Peter & Olson, 1990). Marketers are very interested in understanding consumers' attitudes toward products and brands. They believe that, if they can understand how their prospects evaluate their products and/or services, they could influence this evaluation through advertisements and other modes of persuasive communication. Fishbein's definition of attitude is consistent with Thurstone's (1931) original definition, and it is the most used until today: "Attitude represents a person's favorable or unfavorable feelings toward the object in question" (Fishbein, 1975). According

to Fishbein, attitude forms automatically in conjunction with the learning process. As people learn that a specific object has its own characteristics and attributes, they will develop a positive or negative attitude toward the object, depending on how they positively or negatively evaluate the characteristics and attributes associated to the object.

Therefore, a person acquires attitude toward a new object when he or she learns its association with other objects' attributes and qualities, toward which an attitude is already firmed. Even though people have different reasons for holding the same attitude, it is possible to change it. If it is known which beliefs and evaluative aspects were used to acquire specific attitudes, one can change such beliefs and/or evaluative aspects to change attitudes. Despite the apparent simplicity of the process, the problem is that attitudes are formed based on a set of interrelated beliefs. Changing one belief may also serve to change another and the outcome might be unpredictable. For persuasive communication, it is important to continue to research what influence and what change attitudes. In this sense, a simplified version of the communication/persuasion process may be useful. In exposing consumers to ads, it is expected a retention of information and maybe also feeling arousal; the information and feelings may affect a person's attitudes, and finally, attitudes may affect people's behavior.

In the early 1920s, the interest and research in the psychology of persuasion was an important topic of many applied psychological fields, such as consumer behavior and counseling psychology, but during the 1960s, the interest in the topic diminished (Cacioppo,Petty,Kao, & Rodrigues, 1986). At that time, researchers started questioning under which conditions attitudes would predict behavior, and the fact that few examples on how to change attitude could be generalized made research in this area more difficult and challenging. The major problem was that almost every independent variable studied would vary the capacity of persuasion depending on the context and situation; that is, the same variable that was capable of persuading in a situation X, had no affect in situation Y and so on.

## 2.2 The Elaboration Likelihood Model

It was just in the late 1970s that some progress was made in determining some conditions under which attitudes would or would not predict behavior (Ajzen & Fishbein, 1980). Building on such propositions, a couple of years later, Petty and Cacioppo developed a general theory of attitude change. The Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986) was designed to explain the role of central and peripheral routes to attitude change. Their review of previous research had indicated that attitude toward an object can be formed through basically two

different ways of learning: one that involves cognitive learning and another that occurs through unconscious processes. When thinking about attitude change, these ways of learning by dichotomies can be described as the two routes of persuasion. This model helps us understand some of the processes that are fundamental to the effectiveness of persuasive communication.

The so-called Elaboration Likelihood Model considered:

> In our recent reviews of the many approaches to attitude change employed in social and consumer psychology, we have suggested that--even though the different theories of persuasion possess different terminologies, postulates, underlying motives, and particular "effects" that they specialize in explaining--these theories emphasize one of two distinct routes to attitude change (Petty,Cacioppo, & Schumann, 1983) (p.135).

The first of the two routes is the central route, which is likely to occur when attitude change is a result of a person's careful consideration of the information presented. Attitude in this model has been defined as "general evaluations people hold in regard to themselves, other people, objects, and issues" (Petty & Cacioppo, 1986). The peripheral route to attitude change, on the other hand, occurs when the person associates the

object/issue with positive or negative cues in the persuasion context.

In an early review of attitude change done by Petty and Cacioppo (1981), they suggest that the theoretical orientations of attitude change could be placed along a continuum. At one end of the continuum would be theories, such as Fishbein's theory of reasoned action, that assume individuals typically engage in a careful evaluation of the information presented in a message; they carefully attempt to integrate the information into what they already know. In these theories, the focus is on the arguments presented in the message and how or which ones affect attitudes. At the other end of the continuum are theories, such as classical conditioning theory, that consider influences of affect that could impact people's attitude; these theories focus on variables that might affect attitudes without much conscious thought. As the authors point out:

> Although these theories have been tested and applied primarily in situations where no explicit "advocacy" is presented, they should also be applicable to situations in which an issue position is advocated, but people have virtually no ability and/or motivation to consider it. In these situations, attitude may still be changed if the attitude object is associated with a relatively strong positive or negative affective cue, or if a weaker cue is

continually paired with the attitude object (Petty & Cacioppo, 1986).

The ELM is based on certain assumptions or postulates to explain the influence of the two routes of persuasion. First, the model assumes that people are motivated to hold correct attitudes (postulate 1). Even though the correctness of an attitude can be a very subjective definition, for the authors of this model, correct attitudes are determined to the extent that they bring beneficial consequences to a person. But, although people want to hold correct attitudes, the amount and nature of issue-relevant elaboration in which they are willing or able to engage to evaluate a message vary based on individual and situational factors (postulate 2). It is important to consider that, even though people might want to hold correct attitudes, the effort they are willing to make to hold these attitudes can vary depending on a wide range of factors such as motivation, personal relevance, prior knowledge, the specifics of the situation and others. The authors of the ELM assume that the more important it is to hold a correct attitude, the more effort people will spend to evaluate the object/issue. In order for this to occur, the person needs the motivation and also the ability to scrutinize the issue-relevant/factors/information.

What the authors have proposed is that when ability and/or motivation to scrutinize arguments in a message is

low, attitude still might be changed if: a) cues are presented and associated with the issue in the persuasion context; or b) inferences are made by individuals when trying to form an opinion and they will rely on the cues for the "correctness" of their position.

Further, the second postulate also refers to the notion of elaboration of information, that is, the extent to which an individual carefully thinks about the information presented. In a persuasion context, the determinants of the likelihood of elaboration would be a person's motivation and ability to evaluate the issue-relevant arguments presented by a persuasive communication. For the purpose of this study, this second postulate has important considerations. If the amount of elaboration and effort a person spends to evaluate a message depends, among other factors, on his/her motivation, so maybe the medium adopted can be used to motivate a person to scrutinize the message. The medium can be used in a persuasion context as a positive affective cue that may drive people to attitude change.

Variables are elements that can be manipulated in a persuasion context such as message, recipient, source and context. As already mentioned before, a wide range of variables would have the capacity of persuading, depending on the context and situation. They can affect the amount and direction of attitude change (postulate 3). These variables can be used in any one of the following ways. As

persuasive arguments, they refer to "any information contained in a message that permits a person to evaluate the message target along whatever target dimensions are central for that person." The authors also point out that individuals might also scrutinize information based upon feelings and behaviors, besides beliefs, if they are considered central to the merits of the attitude object under consideration.

Variables can also be used as peripheral cues—defined as stimuli in the persuasion context that can influence attitude without necessarily causing individuals to process message arguments. These cues are more efficient when individuals are either unable or do not have the motivation to process issue-relevant arguments. The authors use the term "influence" as any change that might occur in attitude, while "persuasion" is any change in attitude caused by exposure to communication (Petty & Cacioppo, 1986, p.4). And finally, variables can affect persuasion by influencing the extent of message elaboration, that is, how much a person carefully thinks about an issue-relevant information. In this study, the variable under consideration is the medium and in what extent it may influence the way people evaluate a corporation. Depending on the content of the corporate advertisement, maybe the medium can be used as a persuasive argument or as a peripheral cue.

The model also assumes that, when individuals are capable of considering the arguments of a message, that is, if they have the prior knowledge and opportunity to do so, the elaboration of the information is impartial and based on the message arguments presented (postulate 4). On the other hand, if individuals are not fully capable to consider the arguments of a message, other factors would influence the elaboration of the information (postulate 5). In the present situation, it is conceivable that the medium chosen to present a message might have an impact in both situations. It might facilitate the presentation of message arguments for the individuals that are capable and motivated to consider them. It might also influence the overall evaluation of the information for the individuals that are unable or not motivated to scrutinize the message arguments.

According to the model, as motivation and/or ability to process arguments is decreased, peripheral cues become relatively more important determinants of persuasion. Conversely, as argument scrutiny is increased, peripheral cues become relatively less important determinants of persuasion (postulate 6). This postulate addresses important considerations. First of all, if persuasion is to follow the central route, both motivation and ability to scrutinize the messages have to be present. If either motivation or ability to scrutinize the message is low, then the importance of peripheral cues in determining a

person's attitude is increased. In this case, if any influence occurs, it will be the result of inferences made by the person based on peripheral cues in the persuasion context.

This postulate also shows a tradeoff between elaboration of a message and the operation of peripheral cues. A wide variety of variables can affect a person's motivation and/or ability to scrutinize arguments presented in a message. Further, argument processing is just one route of persuasion presented by this model. The other route of persuasion occurs when people lack the ability or are not highly motivated to scrutinize the message. In this situation, peripheral cues in the persuasion context would be responsible for any attitude change. So, when argument processing is reduced, peripheral cues are important determinants of the persuasion, but as argument processing increases, peripheral cues become less important determinants of persuasion.

Following this line of thought, the model assumes that attitude changes resulting mostly from processing issue-relevant arguments (central route) will show greater temporal persistence, greater prediction of behavior, and greater resistance to counterpersuasion than attitude changes that result mostly from peripheral cues (postulate 7). This is the natural conclusion of the previous postulates. As pointed earlier, persuasion that happens via the central route involves more thinking than via

peripheral cues. In the first case, thoughtful consideration of issue-relevant arguments and careful integration of the information presented into an overall position was likely to occur. We might then assume that attitude change via the central route will show greater persistence overtime and it will be a stronger predictor of behavior. On the other hand, persuasion that occurs via the peripheral route occurs through affective association or inference from simple cues presented by the communication context. How strong and for how long people will hold attitudes formed via the peripheral route is more difficult to predict.

There are some considerations pointed out by the authors of this model that are important to be addressed. Even though it is more desirable to change attitudes via the central route, this is more difficult and ccmplex to achieve. One solution popularly adopted is the use of the peripheral route to persuasion, with the caution of constantly reminding the audience of the cue or cues upon which favorable attitudes were developed. So it is possible to achieve the same results via the peripheral route, but more exposure to the message and cues will likely be necessary.

## 2.3 Attitude Change & the Use of Peripheral Cues

Attitude has obtained a considerable amount of attention over the past two decades and has been used by consumer researchers in at least two ways: as independent variables in studies examining purchasing behavior, based on the assumption that attitudes are good predictors of consumer behavior; and as dependent variables in studies examining consumers' responses to marketing stimuli, specially the effects of advertising (Berger & Mitchell, 1989). One of the topics of interest is the influence of information exposure in attitude formation and attitude change. A study by Berger and Mitchell (1989) showed that attitudes formed on the basis of repeated ad exposure are similar to those formed on the basis of direct experience, that is, they are more accessible from memory, held with more confidence, and are more predictive of subsequent behavior than are attitudes based on a single ad exposure.

Cox and Cox (1988) article examined how consumers' attitudes toward ads are affected by their previous exposure to them, suggesting that the effects may be moderated by the complexity of the ad: evaluations of complex ads become more positive with exposure, while evaluations of simple ads do not. According to them, such findings may help explain why previous studies of ad exposure effects have yielded mixed results. This discussion about exposure effects has to be considered for the purpose of this study. By using

hypermedia, subjects have the chance to be exposed to pieces of information as many times as they need or want. Since they have power over the medium, they can control exposure.

There have been a number of studies addressing questions regarding multiple exposures of the same ad, but Schumann, Petty and Clemons' (1990) research investigated the effectiveness of two different ad variation strategies. The first strategy refers to changes in aspects of the message itself, what they would call substantive variation. The second strategy refers to changes in aspects of less substantive factors, such as format. These later changes were called cosmetic variations. Their findings were consistent with the predictions of the ELM. Cosmetic variation in repeated ads has a greater effect on overall attitudes when product relevance and motivation to process information are low. Substantive variation in repeated ads has a greater impact on overall attitudes when product relevance and motivation to process information are high. The authors found that cosmetic variation enhanced recall of the product and brand for subjects for whom the advertised product was of low personal relevance. Recall of the product was also influenced by the number of exposures in the campaign. Cosmetic variation has a larger effect under low, rather than high product relevance conditions. No effects for cosmetic variation were observed when product relevance was high.

The selection of message, medium, music, pictures and other advertisement's characteristics among all the options and

variations is designed to achieve different purposes. The major goal is to inform consumers about products and services, but besides that, advertisers want the public to like the ads based on the premise that individual's reactions to an ad could affect their evaluation and subsequent purchase of a product/brand. This premise has been formalized in terms of the attitude-toward-the-ad construct. There is a strong support for the view that better-liked ads lead to more positive evaluations of the advertised brand (Chattopadhyay & Nedungadi, 1992).

In one of Mitchell's articles (1986), he examines the effect of the visual and verbal components of advertisements on brand attitudes and attitude toward the ad ($A_{ad}$). According to him, dissatisfaction with models which assume that individuals translate the visual and emotional elements of ads into verbal product related information, led researchers away from strict verbally oriented models of persuasion and caused them to examine other mechanisms that may affect attitude formation and change. Mitchell suggests that in an advertising context, product attribute beliefs, as measured and used to predict attitudes according to Fishbein's attitude theory, may not be the only variable that affects brand attitudes when the ad contains certain types of photographs. A second construct, $A_{ad}$, also appears to affect brand attitudes. The results of this study indicate that the visual component in ads may affect both the formation of product attribute beliefs and the attitude toward the ad. A

meta-analysis involving attitudes toward ads was conducted by Brown and Stayman (1992). Results suggest that attitudes towards an ad play a more important role for the indirect influence on brand attitudes (via brand cognition) than that found in previous model tests. The use of a new and innovative channel to transmit information may contribute to a more favorable attitude toward ads presented in the new format. Because of hypermedia characteristics such as non-linearity and choice-driven format, a positive perception of the media maybe transfer to the product, service, or company advertised.

Chattopadhyay and Nedungadi (1992) focused on the persistence of ad-attitude effects as a function of the level of attention at encoding and the delay between ad exposure and response. According to them, as memory for an ad fades, the effects of ad attitude dissipate meaning that the ad-attitude effects on brand attitude that are reported in past research disappear after a delay. They say that:

> Regardless of whether it is the amount of elaboration at encoding or the availability of retrieval cues at the time of decision making, delay adversely influences memory for the ad and the accessibility of ad-directed cognition and ad attitude. On the other hand, delay has a lesser effect on the accessibility of brand cognition (p.27).

They also point out that, if we strengthen the memory trace for the ad and for the attitude toward the ad by making the experience more "pleasurable", it may remain more accessible over time. Kardes (1986) experiment investigated the degree to which initial stimulus-based judgments of a product influence subsequent memory-based judgments of that product. The author points out that in most day-to-day situations, consumers don't have the opportunity to directly examine and compare several products simultaneously, being forced to rely on information that is stored in memory. The question then is what information is retrieved from memory when consumers judge products. One possibility is that consumers retrieve all facts about a product and in this case, the correlation between recall and memory-based judgments would be high. The other possibility is that consumers might recall few facts, but even in this case, they actively integrate and organize information and generate cognitive elaboration of product information (Petty et al., 1983). According to Kardes, as elaborative encoding or depth of processing increases, the likelihood that these elaborations and judgments will later be remembered also increases. Thus, information that was judged is processed more deeply than information that was not judged, and it is more likely to be recalled.

It is possible to speculate that the characteristics of hypermedia will provide a more enjoyable experience to the user, thus making it more memorable.

Chattopadhyay and Alba (1988) say that, with the exception of point-of-purchase information, message presentation and consumer decision making are rarely contemporaneous. Yet, studies that have examined the predictive power of cognitive responses have usually inserted little or no delay between the stimulus and the response. As a consequence, little is known about the delayed effects of advertising at the individual level. The results of their experiment show that, contrary to recent theory and research regarding the lack of correlation between attitude and recall, recall can be a predictor of attitude given the proper context and a theoretically justifiable recall measure. Even though this study is not going to measure the delayed effect of the corporate ad, it is the belief of this researcher that, by increasing subjects' experience with the ad through hypermedia manipulation, the effect should be extended.

According to Mackenzie and Spreng (1992), research has confirmed the roles of both central and peripheral processing in mediating the impact of advertising on brand attitudes. There is also evidence that, in addition to influencing brand attitudes, peripheral cues such as attitudes toward the ad and others may also influence the amount of a person's central processing. Petty and Cacioppo (Petty,Kasmer,Haugtvedt, & Cacioppo, 1987) have suggested, however, that some minimal level of involvement is required for peripheral cues to have any effect or people might not process any cues associated with the message.

## 2.4 Individual Differences and Involvement

The persuasive process suggests that the strategy people use when processing persuasive information depends on the relevance of the information to them. When information presented in a communication is personally relevant, processing is thought to occur via a central route. Following this strategy, judgments of the issue presented are based on a detailed scrutiny of the message arguments. A considerable portion of an individual's cognitive resources are required for this purpose. In contrast, when message information is of little personal relevance, individuals act to conserve cognitive resources, and judgment is based primarily on peripheral message cues such as the credibility of the communicator (Yalch & Elmore-Yalch, 1984).

In another study done by Petty, Cacioppo and Goldman (1981), where they manipulated personal relevance, argument quality and source expertise, they noted the same pattern: the study revealed that under high relevance, attitudes were influenced primarily by the quality of the arguments in the message. Under low relevance situations, attitudes were influenced primarily by the expertise of the source. They concluded that personal relevance of an issue is one determinant of the route of persuasion that will be followed.

Thus, it was concluded that individuals are more likely to carefully weigh information about a product/object and to

give considerable thought to evaluate the information if they are highly involved with the product category (Cacioppo et al., 1986). It is important to note, however, that other individual differences influence the amount of thought people might be willing to give to a message. According to Cacioppo et. al (1986):

> The fact that the situational factors that have been used to manipulate the extent to which attitudes are based on issue-relevant thinking sometimes account for only a small portion of variance is theoretically due, in part, to systematic individual differences among people in their desire to engage in issue-relevant thinking when they formulate their attitudes (p.1032).

The need for cognition, for example, is an intrinsic characteristic that leads individuals to engage in effortfull information processing. The result of the authors' study shows that individuals low in need for cognition think less about persuasive communications than do individuals high in need for cognition. The difference is consequence of individual's likelihood to engage in effortfull information processing and not due to intelligence. Their experiment supports the ELM in the way that individuals high in need for cognition showed greater attitude-behavior correspondence because their attitudes where based on issue-relevant thinking.

In one of the studies conducted by Petty and Cacioppo, when testing the hypothesis that high issue involvement enhances thinking about the content of a persuasive communication, the authors pointed out that researchers have distinguished between two different types of involvement that can influence how likely to be affected individuals are. The first type is called issue involvement and is related to the personal relevance of the issue under consideration, whereas the second kind of involvement reflects the importance that an attitudinal response has to an individual (Petty & Cacioppo, 1979). Issue involvement would then be considered high or low depending upon the personal importance of the specific issue, the influence that it would have in an individual's personal life. According to Roser (1990), ELM theorists take a more cognitive orientation when defining involvement, that is, they focus on the extent of thinking evoked by the message. Therefore, involvement increases the propensity to process information: as people think about an involving persuasive appeal, they generate thoughts on the issue and thereby persuade themselves.

A systematic versus heuristic analysis done by Chaiken (1980) also argues that greater involvement increases individual's tendencies to scrutinize message content, suggesting that high involvement can both facilitate and inhibit persuasion depending on the quality of the persuasive argumentation. Her findings suggest that high involvement

leads individuals to "employ a systematic information processing strategy in which message-based cognition mediate persuasion." Low involvement leads individuals to use a heuristic processing strategy. In the last case, persuasion is mediated by simple decision rules. One of the studies that follow this trend was done by Petty and Cacioppo (1984), manipulating the number and quality of arguments to test the impact on persuasion. The results showed that the manipulation of the number of arguments has a greater impact under low, rather than under high involvement. But the manipulation of argument quality has a greater impact under high involvement, rather than under low involvement.

Their study suggests that increasing the number of arguments can affect persuasion regardless of whether or not the actual content of the arguments was scrutinized. This is particularly true if people are unmotivated or unable to think about the issue and no other salient cues are present. The authors also imply that manipulating the number of arguments might influence persuasion both via central and peripheral route. If the central route is to be followed, the number of arguments might be useful to individuals that are highly motivated and have the ability to scrutinize the message; it might enhance persuasion by affecting issue-relevant thinking. In the case that the peripheral route is to be followed, the number of arguments might enhance persuasion by serving as a peripheral cue. It is important to note that hypermedia gives the users the

control over the message, including the amount of information they want. Users might control the amount of arguments they are willing to consider. The results of their study also suggested that when peripheral cues compete, the more salient cue has more impact. In trying to avoid this situation where peripheral cues might compete, this study will hold constant all other variables, except the medium.

## 2.5 Characteristics and Influences of the Media

According to the ELM, there is a variety of message factors that can affect a person's ability and/or motivation to process the message. The modality of message presentation is one of these factors. Petty and Cacioppo cited research indicating that messages presented on audio or videotape may be more difficult to process than the same message presented in print (Chaiken & Eagly, 1976). The difference is due to the control of the pace of the message. When the message is presented in printed materials, individuals control the pace of the exposure to the message. But on radio or television this is not possible, since the pace of exposure is controlled by the medium, not by the individual. Very often, one exposure is not enough to a complete elaboration of the message, unless the message is really simple. Consequently, presenting a message with complex arguments should be more effective in

written form. On the other hand, as pointed out by the authors of the ELM:

> ...if it is generally more difficult to process issue-relevant arguments when exposure is forced rather then self-paced, simple cues in the persuasion context should be more powerful determinants of persuasion in the former than in the latter modality (Petty & Cacioppo, 1986).

Therefore, the relationship between the receiver and the message is an important determinant of one's assimilation of the information. When the receiver is allowed to actively manipulate the in-flow of the message, a more complete elaboration is likely. In fact, over the past few years, interactive media have been increasingly used by a variety of professionals, including advertising, marketing and public relations professionals, based on the premise that when people become actively involved with the material presented, they are more likely to retain the message.

Psychologist Raymond Bauer, attributed with originating the concept of active audience, believes that freedom of choice and the fact that one can make a decision among different choices is a sign of "audience activity." Nevertheless, Frank Biocca (1988) points out that although the concept of audience activity is central to mass communication theory, it has received little conceptual development or direct study.

The concept of active audience has different facets that overlap to some extent. Audience activity can be portrayed as the funneling process of selecting first the media, then the program and finally, the content. In considering such selection activity, some theorists emphasize the process of choice, suggesting that when trying to satisfy individuals' needs and motives, a certain level of rational choice exists. It can also be seen as "imperviousness to influence," referring to the degree to which the audience limits, influences, and controls the effects of media. Among the main principles of the activity theory, besides the concepts of selectivity and utility, intentionality and involvement are also present: intentionality as being the more cognitive dimension of activity; and involvement characterizing the level of affective arousal, cognitive organization and information structuring.

The concept of active audience is usually defined by determining what it is not, in other words, the audience is active when it is not passive. But, is it really possible to say that an audience is at some point passive or inactive? Can audience activity be defined just by the fact that audience members process information? Just by giving audience members more choices, are we making them more active? These are some of the questions that can be raised, but the debate over the activity of the audience should not be based on the point of whether the audience "thinks" or "processes" information. The perspective that this study will develop is

whether the audience has active control over the structure of the information process. Do properties of the medium guide processing of content or, does the initiative lie with the individual who has and finds different strategies to manipulate the media content?

According to Frank Biocca (1988), the construct of an "active audience" should be abandoned and each of its components such as selectivity, involvement and utility should be considered as separate concepts. He also points out that we cannot talk about activity of an audience without talking about the "active" role of the medium itself; how the medium itself influences the processing of information. And that is the direction this study will adopt: when talking about how active the audience is, we are also talking about how active the medium itself is, the characteristics that might influence a person's experience in acquiring information.

However important the medium may be, comparative research on media as a persuasive channel has not arrived to a final conclusion as to what extent we can accept that one medium produces more attitude change than another. According to Sthephen Worchel (Worchel,Andreoli, & Eason, 1975), in a study conducted on the effects of media, communicator and message characteristics on attitude change, the type of media does have an effect, but this effect depends on both message and communicator. When the position taken by the message disagrees with that held by the audience, the type of media

does have an effect on the persuasiveness of the message, depending on who is the communicator. In this case, television, radio and written messages have different effects, depending on how the communicator is initially viewed. If the audience is willing to accept the communicator, the more involved they become with the message, the more it affects their attitude. Worchel's article also points out that the more "live" the speech, the more involvement on the part of the audience. If we follow this pattern, television should be more involving than radio, and radio should be more involving than written messages.

Another approach would be that written messages are more involving than TV, because the audience has more control over the pace of the information. Research indicates that messages presented on video or audiotape are more difficult to process than the same messages presented in print. In the latter, the recipient may stop at anytime to process and elaborate the message (Chaiken & Eagly, 1976).

### 2.5.1 The Specific Case of Hypermedia

Hypermedia provides audience with control over both the pace of the information and the "liveliness" of the speech. These systems started to invade a variety of markets in the 1980s with a combination of at least two of the following items: text, graphics, animation, still picture, motion video and sound. Controlled by a computer, the various media also

offer interactivity, that is, instead of just receiving a predetermined message, people can participate in the elaboration of the message, they can—as the new jargon goes —"navigate through information."

A major boom in the 1980s was also the design of the first graphic-based applications. The idea was to make computer software more transparent, easier for any kind of user. All the elements cited above have been commonly used by advertisers in one way or another, but the fact that communication professionals can have all these media combined with interactivity to present information consists a breakthrough. Some communicative elements, such as pictures and text, audio and video are frequently used in simple combinations to convey information about a product/service.

According to Kisielius and Sternthal (1986), these practices are based on the belief that "vividness" enhances the effectiveness of an appeal. Vividly presented information has been shown to induce greater recall than has more pallidly presented information. The effect of vividness becomes more controversial in situations where attitude or persuasion is the criterion for judging message effectiveness. The authors introduced the availability-valence hypothesis, which is based on a current view of memory operation. According to this view, attitudinal judgments depend on the favorableness of information accessible in memory. From this perspective, the effect of pictures, concrete information, and other vividness induction

on attitudes depend upon the extent to which they stimulate a cognitively elaborate representation in memory. Further, whether such elaboration enhances, undermines, or does not affect attitudinal judgments depends on its favorableness. Thus, persuasive effect for vividness is determined by the additional information that vivid information recruits from memory (availability) and the positive or negative properties of this information with respect to the message (valence).

McGill and Anand (1989) interpreted this hypothesis to imply that the vivid information would have additional influence only if people elaborated on the material presented. If people do not elaborate on the stimulus, there will be no difference in persuasion attributable to the vividness of the material. The results of their study demonstrated disproportionate influence for vivid versus non-vivid attributes included in the same description only in the high elaboration condition. Findings suggest that cognitive elaboration may be a necessary condition to produce an effect for vividness on attitudes.

There is a variety of ways in which pictures can facilitate persuasion. As Mackenzie points out (1986) pictures can be considered attention-getting devices, they may affect message learning by enhancing the memorability of the information, and they may also influence post message attitudes. According to Stuart, Shimp, and Engle (1987) the effects involve a direct transfer of affect from the picture to the product, as suggested by classical conditioning principles.

The finding from Miniard (Miniard,Bhatla,Lord,Dickson, & Unnava, 1991) study supports the moderating role of involvement in picture-based persuasion, as suggested by the ELM. It shows that previously reported effects regarding picture-based persuasion are dependent on the level of involvement during message processing. Within the central route, post-communication attitudes depend on the quality of the message arguments. Within the peripheral route, post-communication attitudes are based on message elements devoid of issue-relevant information. From this perspective, the moderating role of involvement would depend on whether pictures convey product-relevant information. When pictures serve as arguments, their influence should grow as involvement increases. Greater involvement should have the opposite effect for pictures that act only as peripheral cues. Pictures lacking product-relevant information should exert less influence as involvement increases.

Hypermedia can capture the vividness of pictures, the liveliness of the speech, the energy of the video. Users control the pace and the amount of information they want. And because they have this type of control, hypermedia is a good medium to reach all different levels of consumers' interest in products, companies and services. According to Maheswaran's (Maheswaran & Sternthal, 1990) study comparing how experts and novices deal with information, regardless of subjects' prior knowledge, they could be motivated to process message information in detail. However, experts and novices

differed in the types of information that prompted detailed message processing. Experts are more likely to process a message in detail when given only attribute information, while novices are more likely to do so when given benefit (or benefit and attribute) information. Hypermedia can accommodate all kinds of information and users can decide what kind of path they want to follow. Computer software organizes and connects the data in a way that people can move easily from one subject to another or they can explore different aspects of the same subject. Usually what we find is many screens (with information connected) and buttons—areas that, when clicked or touched, will lead you to another piece of information. People using these buttons can create their routes to gather information in the system. And since there is not a specific order or a specific timing when users must go to another piece of information, hypermedia allows the message recipients to establish their own personal pace of development.

Hypermedia has been celebrated as a new way of transmitting information, a new way of learning. The more people use hypermedia applications, the more they exercise their decision making ability to choose their own pace and route of learning and, hopefully, the more motivated they will be to learn. This process might also influence people's attitude towards objects, products, services or companies.

## 2.6 The Hypotheses of This Study

In a review of some of the most important journals in the advertising and consumer research areas, it is possible to note that researchers have already included in their work some preliminary attempts to understand the key issue of this study: the relationship between the medium and the persuasive power of a message to change one's attitudes. While the hypotheses proposed in this study include many well-researched concepts and issues, their application in the hypermedia field can be considered innovative.

The main hypothesis is that hypermedia systems are more effective than the videotape medium, when the same content is presented to an audience. This hypothesis opens an umbrella of more specific hypotheses:

HP1: The use of high-technology media influences individuals' attitude toward a corporation, that is, hypermedia users develop a more favorable overall attitude than the video viewers towards the corporation;

HP2: The attitude towards the content varies depending on the media used to present it, that is, hypermedia users develop a more favorable attitude towards the content than video viewers;

HP3: Hypermedia users might recall less breadth of content than video viewers but they might have a higher recall of specific topics of the content than video viewers.

Another aspect that will be measured is subjects' attitude towards each medium used in this study. The hypothesis is that:

HP4: The attitude towards the medium varies depending on the medium to which subjects were exposed: hypermedia users develop a more favorable attitude towards the medium hypermedia than video viewers, and video viewers develop a more favorable attitude towards the medium video than hypermedia users.

In this particular case what is going to be analyzed is a company's corporate advertising. Corporate advertising is basically an area of non-product advertising used with the main purpose of enhancing corporate image and awareness. Neither the video nor the hypermedia version of this corporate advertising are trying to "sell" a specific Ameritech product, but rather increase people's awareness of the company's services targeted to education. The first hypothesis suggests that the use of high-technology media to present the message to an audience will influence a person's attitude toward a company. Consequently, hypermedia users will develop a more favorable overall attitude towards the corporation than will the video viewers. It is possible to believe then that, if nothing else in the content of the message influences the person's attitude toward the corporation, the fact that the company is using a high-technology medium may consist a peripheral

cue to help people perceive the corporation as being modern, updated and trustworthy.

This hypothesis would be in line with the ELM's idea that individuals highly involved with an issue tend to be highly motivated to perform a deeper scrutiny of the incoming information. In other words, the arguments of the message become the central processing route to promote attitude change. Individuals are then highly motivated and also have the ability to scrutinize issue-relevant arguments. On the other hand, when individuals have a low involvement with an issue, they tend to be less motivated to consider the arguments of the message, and take other peripheral cues to develop or change their attitudes. In this case, when motivation and/or ability to scrutinize issue-relevant arguments are low, attitudes are determined by cues in the persuasion context that might be associated with the message. Therefore, the medium might help individuals scrutinize the message in high involvement situations or it might be an effective peripheral cue when involvement is low.

The second hypothesis suggests that individuals' attitude towards a message with which they have little involvement varies depending on the media used to present it. In this specific study, it is expected that the content of the message consists a relatively low involvement issue for all respondents, so more peripheral cues (such as medium) are likely to be used in the persuasion process.

Thus, hypermedia users are expected to develop a more favorable attitude towards the content than video viewers. As indicated by some researchers:

> Peripheral cues such as the expertise or attractiveness of a message source [or medium in this case] (Chaiken 1980; Petty, Cacioppo, and Goldman 1981; Rhine and Severance 1970) have had a greater impact on persuasion under conditions of low rather than high involvement (Petty, Cacioppo and Schumann, 1983).

The choice of one medium over another is expected to be a more significant variable in determining attitude change, bringing about the issues under analysis by these hypotheses. Hypermedia's interactive characteristics, combined with the active arrangement of information into more manageable chunks of interconnected data, constitute the basis upon which this study will consider it a high involvement medium, in comparison to the videotape. This consideration will also have an impact on recall, since hypermedia's active involvement experience may provide for higher message recall.

The third hypothesis proposes that hypermedia users might recall less breadth of content than video viewers but they might have a higher recall of specific topics of the content than video viewers. Because of the characteristics

of the hypermedia medium, individuals will have more chances to scrutinize the message if they want to. Individuals will have the chance to go through the message at their own pace and, as mentioned before when discussing message modality, the pace of exposure is controlled by the audience, not by the medium. In cases of complex messages, one exposure might not be enough to a more complete elaboration of the message and individuals presented with the hypermedia version of the corporate ad will be able to control how many times they want to listen to the same piece of information. Because they are in control, they might not be exposed to the whole ad, thus they might recall less breadth of content then the video viewers but they might have a higher recall of specific topics.

Another fact that is important to consider is that, if giving the audience the control over the pace of exposure (time) is more effective when presenting complex messages, that also might hold true when presenting a low involvement issue because even when the content is not as relevant as one would expect, individuals may still find a piece that is more relevant than another, and scrutinize that part of the message.

An additional point to be considered is the fact that people can "manipulate" the medium (the computer), what might serve as a motivation for individuals to elaborate issue-relevant arguments. Even if the manipulation of the medium initially becomes a distraction for some people, due

to its innovative character, this incentive to think should hold true. As mentioned before, the second postulate of the ELM also refers to the notion of elaboration of information and, in a persuasion context, the likelihood of elaboration would be determined by the individual's ability and motivation to evaluate the message presented by a persuasive communication. In this case, because of the innovative aspect of the medium, individuals might be more motivated to scrutinize the message when presented in the hypermedia version, even though there is always the risk of distraction by the medium because it is relatively new. Even if the last case holds true for some subjects, this fact still might reflect positively in the fourth hypothesis, when attitude towards the medium is being measured.

The fourth hypothesis suggests that the attitude towards the medium varies depending on the medium to which subjects were exposed: hypermedia users develop a more favorable attitude towards the medium hypermedia than video viewers, and video viewers develop a more favorable attitude towards the medium video than hypermedia users. This hypothesis relies on the fact that individuals being exposed to a different medium will develop their attitude towards the medium based on their own experience and not only on what they might have heard or read about that medium. As mentioned by Schiffman and Kanuk (1991), "the primary means by which attitudes towards goods and services are formed is

through the direct experience of trying and evaluating them." The same premise is taken related to experiencing the medium.

# Chapter Three

# Methodology

## 3.1 Methodological Procedures

In order to compare the relative effectiveness of the two media—videotape and hypermedia—in delivering corporate information to an audience, an experiment was conducted. The experimental design selected was the post-test only with control group, which eliminated the influence of any pretesting. Subjects were students from the Michigan State University College of Communication.

The post-test only with control group design is used often when researchers are interested in estimating the impact of experimental variables. Awareness of the issues that would be measured by the experiment is avoided by the lack of any kind of pretesting.

Subjects were divided in three groups: one group received the video treatment, the other group received the hypermedia treatment, and the last group (control group) only answered the questionnaire. The treatment consisted of exposition of an Ameritech corporate advertising piece in one of the two media used in this study: video and hypermedia.

A computer laboratory was reserved for the hypermedia group. The experiment required that computers had a CD-ROM drive and at least 90 Megabytes available in the hard drive to allow copying the program to each computer. Headphones

were necessary to avoid disturbance among subjects simultaneously exploring different segments of the hypermedia software and listening to different testimonies and segments.

Due to the convenience of having all students participating in the experiment report to the same building, another computer laboratory was reserved for the video presentation. Control group subjects could answer the questionnaire anywhere outside the laboratories where the other two groups were under treatment. The first students to volunteer were mostly assigned to the hypermedia group. The priority for this treatment is justified by the laboratories' busy schedule (most of them are used for classes and open to the public when there is no class) and also because of the timing when it was done (two weeks before final exams). If enough subjects were not assigned to the hypermedia group, a repetition of the experiment would have to be delayed more than 6 weeks, when computers and students would be available. Following the treatment, participants were asked to fill out a questionnaire designed to measure their overall attitude towards the corporation, their attitude towards the content presented, and their attitude towards the medium hypermedia. There were also some demographic questions and others measuring recall of the message.

## 3.2 Experiment Stimuli

The material used consisted of a short videotape and a hypermedia software. The video "Ameritech SuperSchool: Unlocking the Future of Education through Communications Technology" is a corporate advertising piece presenting products and services offered by the company. A hypermedia version of the same content was developed in 1993 by MSU's Communication Technology Laboratory (CTL).

The content of this company's corporate advertising depicts a portfolio of communication solutions that would impact the quality of education inside and outside the classroom. It describes the use of communication technology by schools to enhance the education process in five major areas: distance learning, library/learning resources, networks, administration and home learning. In each of these areas, it shows how the implementation of communication technologies can enhance the effectiveness and efficiency of education. It then shows that Ameritech can implement and maintain the communication solutions schools need to maximize resources for providing highest quality education.

Since the videotape was more complete than the software, the original videotape had to be edited in order to get the content of the video and the hypermedia version to be the same. Therefore, the video used for this experiment is a 23-minutes edited version of the original Ameritech videotape. Subjects in the hypermedia version were given the same amount

of time, 23 minutes, to explore the hypermedia version of the same content.

The hypermedia version starts with a main menu that takes the user to 3 submenus: K-12, college and home. In each submenu, subjects have choices among a series of movie segments (QuickTime movies) presenting the topic selection with a written explanation/summary of the topic selected. The user can, at anytime, stop the movie, select a different one in the same submenu/screen, or go to a different submenu/screen using the buttons for navigation integrated on the screen. Users can also listen to the same movie segment as many time as they like and they can click on a question mark for help on navigational doubts.

## 3.3 Measurement

### 3.3.1 The Instrument

A questionnaire was used to measure the variables under study. Subjects took an average of 15 minutes to answer the seven-page questionnaire with 15 questions. The questionnaire for the hypermedia and videotape groups was basically the same, with appropriate references to the hypermedia program or videotape, depending on the case. The control group questionnaire had three pages and seven questions. The questions were the same, except by the exclusion of those related to the content of the video/hypermedia program, as

the control group subjects were not exposed to any message at all.

Several drafts and reviews of the questionnaire wording and structure were made. Items were added, others were reworded to make sure that the questions would be well understood by subjects and, mostly important, that each question (or the combination of them) would be measuring what it was intended to.

The first question was a multiple choice question where subjects were presented with a set of 16 topics and they were asked to check all that they could remember seeing in the material they were exposed to. Three phony items were added to the actual 13 topics presented for the purpose of checking if subjects were attentive to the question asked.

The second question was an open-ended question in which subjects had to select two topics from the message they had just being exposed to and write all they could remember about them. They had a maximum space of one page to write about each topic.

The third question was a 32-item semantic differential scale with a seven-point interval and anchors of "strongly agree" and "strongly disagree." Instructions were given to subjects that, by marking the middle point, they would be indicating their indifference towards that specific item. To test the consistency of their opinion, almost half of the items were negative statements and the other half were positive.

The statements to which respondents had to indicate their level of agreement consisted of broad ideas about Ameritech, about companies' (in general) usage of new communication technologies, and about video and hypermedia presentations. All these statements were originally created by this researcher for the purpose of this study.

The fourth question was a 10-item semantic differential scale with a seven-point interval between opposite adjectives. Subjects could indicate their opinion towards the content by marking an "X" closer to the adjective that better matched their opinion.

The next four questions were designed to measure subjects' involvement with the content presented in the experiment, followed by a dichotomous question where subjects were given the chance to make a media choice between video and hypermedia to present the message they had just being exposed to.

The last six questions were added to gather demographic data: age, gender, major, ownership of several electronic equipment and new media usage. Multiple-choice questions (allowing multiple responses) were used to determine ownership and new media usage was measured by three-prong questions (from "never" to "a few times").

As indicated before, the control group questionnaire did not include any items about or related to content, but did include question number three and the last demographic

questions. Copies of the questionnaires are included in the appendix.

### 3.3.2 Variables and Attitude Scales

#### Independent Variable

The independent variable in this case is the format of information. Subjects were exposed to two different formats of the same message or, in the case of the control group, were not exposed to any message at all.

Subjects under any of the two treatments had access to the same message, and all other conditions were maintained constant (i.e. period of exposure, questionnaire, population) so any difference/variation between the two groups are believed to be caused by the independent variable, the format of the presentation.

#### Dependent Variable

The dependent variables selected for this research are attitude and recall. The first hypothesis suggests that the use of high-technology media influences individual's attitude towards a corporation. Twenty semantic differential items included in the third question were designed to measure the subjects' overall attitude towards a corporation. Some of these items were specifically about Ameritech corporation and

others were about companies in general. The results of a factor analysis indicated that the 20 items could be grouped in smaller sets; these sets could then be used to represent the relationship among the items under each factor. Factor analysis is frequently used to summarize a large number of variables with a smaller number of interrelated variables.

Five factors were identified, determining different dimensions of attitude towards corporations. These five factors accounted for 62.3% of the variance. Reliability for all multiple-item scale was calculated and results show acceptable reliability above .70 for three of the factors, which will be reported next. Although some of the items were presented to subjects in negative statements, proper coding was done with higher values meaning more favorable attitude.

Factor 1

This factor was composed of 8 variables measuring subjects' overall attitude towards Ameritech. The reliability for this factor was alpha=.86. The variables grouped for this first factor are:

1) Ameritech provides reliable access to information

2) Ameritech is a leader in researching advanced services that customers need/want

3) Ameritech is not doing much to improve its services through new technology

4) Ameritech takes advantage of modern equipment to offer services

5) Ameritech is not responsive to customer needs

6) Ameritech has become increasingly involved in developing new technologies

7) Ameritech is one of the American's leading information companies

8) Ameritech is one of the most successful telecommunication companies in the U.S.

Factor 2

This factor was composed of 3 variables and the reliability for this scale was alpha=.76. The items in this subset measured individual's attitude towards Ameritech, focusing on the company's ability to provide schools with the proper information tools. The individuals' perception of Ameritech's ability to provide the products/services to schools, is expected to influence individuals' attitude towards Ameritech as well. The items included in this subset are:

1) Ameritech does not yet provide the information tools needed to help schools access information

2) Ameritech does not understand the communication needs of schools

3) Most schools in the U.S. are not likely to adopt the communication solutions presented

Factor 3

This factor measures individuals' overall attitude towards a corporation that uses new technology to reach its customers. Since it does not mention Ameritech, it is a broader attitude dimension. The reliability for this scale was alpha=.72 and the 3 items grouped in this factor are listed below:

1) The use of new communication technology to reach a company's customers gives it an advantage over its competitors

2) If a company uses innovative, new communication technology, it has a better chance to be known as being a leader in its line of business

3) A company that uses new communication technology to present its products and services, gives you the impression that it is a modern corporation

The second hypothesis suggests that the attitude towards the content varies depending on the media used to present it. A 10-item semantic differential scale with 7-point interval was designed to measure individuals' attitude towards the content presented. Subjects were asked to indicate their overall impression of the material they have just seen, marking an "X" closer to the word that better described their opinion:

01) Like/Dislike

02) Not informative/Informative

03) Helpful/Not helpful

04) Not confusing/Confusing

05) Interesting/Not interesting

06) Relevant/Not relevant

07) Attract your attention/Didn't attract you attention

08) Well presented/Poorly presented

09) Not important/Important

10) Clear/Unclear

Correlation results indicated that all 10 items were highly correlated and the reliability of this multiple-item scale was alpha=.84. A composite variable was created with values ranging from 7 through 70.

The first and second questions were measurements of recall (hypothesis 3). The first question was designed to measure breadth of content. The possible range was 0 to 16, but because only 13 topics were presented by either medium, during data analysis a variable was created to account for the phony topics.

The second question was designed to measure subject's recall of specifics about two topics of their choice. Selecting more than two topics would make subjects less willing to write deeper or in more detail what they could actually remember about each one of them. This was the only

open-ended question and it was coded based on the number of things people wrote about each topic (i.e. topic definition, who is using the service, who appeared on the advertisement talking about it). The number for each topic was then added up in a single variable. The range had a minimum value of 1 and a maximum value of 14, meaning that the subject wrote just one thing that he or she could remember about the topics selected and the maximum number of things that one could remember about both topics selected was 14.

The fourth hypothesis suggests that the attitude towards the medium varies depending on the medium to which subjects were exposed. Twelve semantic differential items included in the third question were designed to measure the subjects' overall attitude towards the medium hypermedia and video:

1) Companies have a better chance of reaching their customers if they diversify their media selection

2) Interactive multimedia, or hypermedia (CD-ROMs, computer-based kiosks of information...) is a good choice for corporate advertising because of its non-linearity: people are able to explore deeply the topics that interest them most

3) Customers have more control over the message when it is presented in a hypermedia format

4) Hypermedia is not a good medium to present a message because people still don't know how to use it

5) The cost of hypermedia presentation is greater than the cost of a video presentation

6) Traditional media (newspaper, magazine, radio, TV) is still the best way of reaching customers

7) People are more involved in hypermedia presentations

8) People don't pay a lot of attention to hypermedia presentations

9) People pay attention to a video presentation

10) Video is a good choice for corporate advertising because its linearity: people are exposed to the entire message

11) Hypermedia is not a good medium to present a message because people are still not familiar with it

12) People have a good chance of being bored by a video presentation

The results of a correlation among the twelve semantic differential items designed to measure this variable showed that not all the items were highly correlated. A factor analysis was the next step taken. Four factors were identified and they accounted for 65% of the variance. Each factor had three or less variables and reliability for each multiple-item scale showed results only slightly above .60 for three of the factors. Two of the items were taken off and a new factor analysis calculated without them. It showed no effect on the number of factors identified nor on the reliability of the scales. Moreover, the factors did not

actually cluster the variables in subsets that were measuring a specific dimension of the individuals' attitude towards the medium.

Two other questions were also designed to measure individuals' attitude towards the medium. A dichotomous question asked whether subjects would suggest presenting the message in a video format or in a hypermedia format. The other question was regarding hypermedia usage.

Four questions were designed to measure subjects' involvement with the content presented in the experiment. The questions pertained to how much the message presented was going to influence their life today (present), how much thought they put into evaluating the message presented, how likely the topic was going to influence their life in the near future and, finally, how likely they were of being in a position to influence a decision about using or not the products and services presented to them in the message they had just seen. These were semantic differential scales with 7-points interval.

A composite variable for analysis of involvement was created combining the four questions mentioned above. The reliability for this multiple-item additive scale is high (Cronbach's alpha = .75). The range has a minimum value of 4 and maximum value of 28. The lower the score, the lower the subject involvement with the topic presented.

### 3.4 Subjects

Students from the Michigan State University College of Communication were subjects for this study. This sample was chosen mainly because these students will be the professionals that soon will be influencing clients' decisions about where, how and when to do their advertising campaigns.

Students from three courses offered by the College of Communication were invited to participate in this experiment for extra credit, with number of extra points determined by each professor. Students willing to be part of this study could choose one of three sections scheduled for different times and days of the week, to avoid conflicts with their regular class schedules. The duration of the experiment was approximately 45 minutes, including the time of being exposed to the corporate advertising and filling out the questionnaire. It was stated in class and again before each section started that their participation was voluntary and that their identification would be kept anonymous. In fact, there is no way to identify subjects with their follow-up questionnaire responses.

The sample consisted of a total of 92 students, that were divided in three groups, by order of arrival: the first ones were assigned to the hypermedia group and the other ones either to the video or control group. The experiment was

administered by the researcher and a doctoral student from MSU.

### 3.5 Analytic Strategy

The first step to analyzing the data included coding the questionnaire, assigning values, names and missing value for each variable, and finally, data entry.

Frequency tables were created for all variables, and all three groups were analyzed together and separately to check accuracy of data coding and data entry. A document combining the data from the three groups was created for the analysis.

Hypothesis 1 and 4 refers to the use of high-technology media influencing subjects' attitude towards a corporation and attitude towards the hypermedia medium and traditional media. Control group was available for these analyses.

After calculating the correlation among the 20 items designed to measure Hypothesis 1 and the 12 items designed to measure hypothesis 4, analysis showed that some of the items were not strongly inter-correlated. A factor analysis was then conducted in order to combine the items that were strongly correlated in factors that were measuring a singular attitude dimension. Variables with low communalities were removed in order to generate more interpretable factors. A new factor analysis was run without one item for hypothesis 1 and without two items for hypothesis 4. Reliability for all

scales were calculated, while new and weighted variables were created.

The statistical model selected to test differences among the three sample means was single-factor analysis of variance. This model is commonly used by researchers when testing variations among more than two population means.

Hypothesis 4 required an extra step in the data analysis. T-tests were calculated for the twelve items, because of the factor analysis results (showed in the next chapter). Crosstabulation was used to analyze the questions on media selection and media usage.

Hypothesis 2 was related to subjects' attitude towards the content and hypothesis 3 was related to content recall (breadth and recall of specifics). A control group could not be included in the analysis of these two hypothesis because, as stated above, the control group was not exposed to any content.

Correlation and reliability for the 10 items used to measure attitude towards the content was calculated (hypothesis 2). T-test was used to measure statistic differences between the two treated groups.

The number of specifics about each topic remembered by subjects was combined into one variable. A t-test was used for the composite variable created and also for the one designed to measure breadth recall.

# Chapter Four

# Findings

## 4.1 Sample Characteristics

A total of 92 students participated in this experiment. The majority of them (65%) had a communication-related major (journalism, telecommunication, advertising, communication and marketing). The three groups (video, hypermedia and control) were similar in terms of demographic and also regarding new technology usage and electronic ownership. The results showed that there is no statistically significant difference betweeen the groups ($X^2 > .20$). Characteristics of the three groups are described separately and then summarized in Table 1.

### Hypermedia Group

This group was composed of 24 students, 10 females and 14 males. The age average of this group was 20 years old. Regarding the ownership of electronic equipment, such as computers, VCRs and television sets, more than half of them responded positively.

Regarding new media usage, the majority of the group indicated that they have used Internet: 75% have used it many times, approximately 21% have used a few times and only 4.2% have never used it. Considering MSU Pilot Electronic Mail

services, it should be no surprise that all students reported to have used e-mail. Half of the group reported that they have accessed the World Wide Web many times. Bulletin Board Systems had the highest score of never-used media (37.5%). It is possible that these figures are inflated, in case respondents have an incorrect or diffuse understanding of what a BBS is.

### Video Group

This subsample was composed of 29 students, 17 females and 12 males. The age average for the video group was 21 years old. Almost all subjects on this group reported that they own a television set and a VCR (96.6%) and more than half of the group own a computer (55.2%).

The percentage of participants in this group that have never used Internet, World Wide Web and e-mail is low. Only one subject reported never using e-mail and the other 96.6% indicated that they are heavy users of e-mail. Once again, Bulletin Board Systems had the highest score of never-used media with a little over half of the group reporting that they have never used it.

### Control Group

The control group had 39 participants, 15 females and 24 males. The age average for this group was 21 years old. All

but one subject reported not having a television set and only two subjects reported not having a VCR. Sixty-four percent of students in this group reported that they own a computer.

The percentage of participants from this group that have used Internet, World Wide Web and e-mail is high. Bulletin Board Systems had the highest score of never-used media: 54% indicated they have never used it and only 18% reported they have used it many times.

Table 1- Summary of Groups Characteristics

| | Hypermedia | Video | Control |
|---|---|---|---|
| Number of Respondents | 24 | 29 | 39 |
| Gender | | | |
| Male | 14 | 12 | 24 |
| Female | 10 | 17 | 15 |
| Age Average | 20 | 21 | 21 |
| Computers | | | |
| Own | 66.7% | 55.2% | 64.1% |
| Doesn't own | 33.3% | 44.8% | 35.9% |
| VCR | | | |
| Own | 87.5% | 96.6% | 94.9% |
| Doesn't own | 12.5% | 3.4% | 5.1% |
| Television set | | | |
| Own | 95.8% | 96.6% | 97.4% |
| Doesn't own | 4.2% | 3.4% | 2.6% |
| Modem | | | |
| Own | 45.8% | 41.4% | 41.0% |
| Doesn't own | 54.2% | 58.6% | 59.0% |
| CD-ROM | | | |
| Own | 33.3% | 27.6% | 25.6% |
| Doesn't own | 66.7% | 72.4% | 74.4% |
| Internet | | | |
| Many times | 75.0% | 72.4% | 51.3% |
| Few times | 21.8% | 24.1% | 41.0% |
| Never used | 4.2% | 3.4% | 7.7% |
| World Wide Web | | | |
| Many times | 50.0% | 48.3% | 41.0% |
| Few times | 37.5% | 44.8% | 28.2% |
| Never used | 8.3% | 6.9% | 23.1% |
| E-mail | | | |
| Many times | 87.5% | 96.6% | 94.9% |
| Few times | 12.5% | - | 2.6% |
| Never used | - | 3.4% | 2.6% |
| Gopher | | | |
| Many times | 50.0% | 48.3% | 41.0% |
| Few times | 29.2% | 31.0% | 41.0% |
| Never used | 16.7% | 20.7% | 15.4% |
| BBS | | | |
| Many times | 16.7% | 13.8% | 17.9% |
| Few times | 45.8% | 34.5% | 25.6% |
| Never used | 37.5% | 51.7% | 53.8% |

## 4.2 Findings on Individuals' Involvement with the Topic Presented

A composite variable was created combining the four questions designed to measure involvement . The range has a minimum value of 4 and maximum value of 28. The minimum value obtained was 9 and the maximum value was 27 (the lower the score, the lower the subject involvement with the topic presented). The mean is 20.96 and standard deviation of 4.26.

A t-test was used to determine differences in the two subsamples (hypermedia and video group). Looking at the pooled variance estimate (statistic based on the assumption that the population variances in the two groups are equal), results indicate that the difference between the groups regarding their involvement with the topic presented in the experiment is not significant ($p>0.5$).

## 4.3 Findings on Attitude towards Corporations that use New Communication Technology: H1

The first hypothesis suggests that the use of high-technology media influences individuals' attitude towards a corporation, that is, hypermedia users develop a more favorable overall attitude than the video viewers towards a corporation.

Factor 1 - Overall attitude towards Ameritech

Single-factor analysis of variance results show that both hypermedia and video group had a more favorable attitude than the control group on the dimension of overall attitude towards Ameritech ($F=11.2$, d.f.=88, $p<.001$). The means for each of the three groups reported by the Scheffe procedure (it can be used to denote pairs of groups significantly different at the .05 level) follow: control group mean=25.9, video group mean=29.9 and hypermedia group=30.7. The results reported were found to be not statistically significant to support the hypothesis of this study that hypermedia users would develop a more favorable attitude than the video viewers, though the results are in the hypothesized direction.

Factor 2 - Attitude towards Ameritech's ability to provide products and services to schools

Single-factor analysis of variance results show that both hypermedia and video group had a more favorable attitude than the control group towards Ameritech's ability to provide products and services that schools need ($F=8.9$, d.f.=91, $p<.0001$). The means reported by the Scheffe procedure show a slighty higher mean for the hypermedia group (but still not statistically significant): control group mean=9.6, video group mean=11.9 and hypermedia group mean=12.5. The results are not sufficient to reject the null hypothesis that there is no difference between the groups hypermedia and video.

Factor 3 - Overall attitude towards a corporation that uses new technology to reach its customers

Single-factor analysis of variance results show that the only signifcant difference was between the hypermedia group and the control group in this dimension of attitude. Hypermedia group had a more favorable attitude than the control group ($F=3.52$, $d.f.=89$, $p<.04$). The means presented by the Scheffe procedure are: control group mean=12.65, video group mean=13.56 and hypermedia group mean=14.06. Although the results does not show a statistically difference between the hypermedia group and the video group, it does show a positive impact of the hypermedia medium.

## 4.4 Findings on Attitude towards the Content: H2

The second hypothesis suggests that the attitude towards the content varies depending on the media used to present it: hypermedia users will develop a more favorable attitude towards the content than the video viewers. This hypothesis does not include the control group, because it depends on message exposure.

The composite variable created had values ranging from 7 through 70 (from the 10-item semmantic differential scale). The minimum value reported was 38 and maximum value was 70. The variable mean was 55.60 with standard deviation of 8.07.

According to T-test results (pooled variance estimate column), this hypothesis was supported: hypermedia users did develop a more favorable attitude towards the content than video viewers ($t=1.87$, $d.f.=51$, $p<.05$).

### 4.5 Findings on Message Recall: H3

The third hypothesis suggests that hypermedia users might recall less breadth of content than video viewers but they might have a higher recall of specific topics of the content than the video viewers. The first question used for testing this hypothesis was a multiple-choice question with a list of the 13 products and services presented in the experiment, to test breadth of content.

The mean for this variable was 9.25, standard deviation of 2.22, minimum value of 2 and maximum value of 13. The number of subjects that checked phony items was not significant: only around 10% selected one of the products that were not included in the message and three subjects selected two of the products not selected. These numbers are not high and it probably just means that individuals got confused and/or thought they have seem the items in the presentation, specially because they were well-known Ameritech services.

T-test results (pooled variance estimate column) contradict the first part of this hypothesis. Hypermedia users recall more breadth of content than video viewers ($t= -3.11$, $d.f.=51$, $p<.001$).

The second part of this third hypothesis was measured by an open-ended question. The range had a minimum value of 1 and a maximum value of 14, meaning that the subject wrote just one thing that he or she could remember about the topics selected and the maximum number of things that one could remember about both topics selected was 14. The mean of this variable was 7.38, standard deviation was 2.88.

T-test results (pooled variance estimate column) indicated no statistical significant difference between the two groups, video and hypermedia ($p>.05$).

Overall results for the third hypothesis indicate that the medium did influence recall of breadth of content but in the opposite direction assumed by this study: hypermedia group did recall more breadth of content than video viewers. But the medium did not influence the recall of specific topics points.

## 4.6 Findings on Individuals' Attitude towards the Medium: H4

The fourth hypothesis suggests that the attitude towards the medium varies depending on the medium to which subjects were exposed: hypermedia users would have a more favorable attitude towards the medium hypermedia than video viewers, and video viewers would have a more favorable attitude

towards the medium video than hypermedia users. The control group was not included in this analysis.

T-tests were calculated for each of the eleven semantic differential scale items (one of the items were excluded because of low communality with the other items). As shown in Table 2, the results indicated no statistically significant difference between the two groups for each one of the eleven items (the lowest p was .09). Therefore, the attitude towards each medium, measured by the 11-item semmantic differential scale, was not conditioned by exposure to hypermedia neither video presentations.

Table 2 - T-test results for Hypothesis 4

| Item | Video mean | Hypermedia mean | t value | 2-tail prob. |
|---|---|---|---|---|
| Companies have a better chance of reaching their customers if they diversify their media selection | 6.28 | 6.25 | .09 | .92 |
| Interactive multimedia, or hypermedia (CD-ROMs, computer-based kiosks of information...) is a good choice for corporate advertising because of its non-linearity: people are able to explore deeply the topics that interest them most | 5.83 | 5.79 | .10 | .92 |
| Customers have more control over the message when it is presented in a hypermedia format | 5.04 | 5.46 | -1.43 | .16 |
| Hypermedia is not a good medium to present a message because people still don't know how to use it | 4.52 | 4.62 | -.27 | .78 |
| Traditional media (newspaper, magazine, radio, TV) is still the best way of reaching customers | 3.31 | 2.58 | 1.61 | .11 |
| People are more involved in hypermedia presentations | 4.72 | 5.12 | -1.36 | .18 |
| People don't pay a lot of attention to hypermedia presentations | 5.10 | 4.91 | .51 | .61 |
| People pay attention to a video presentation | 3.93 | 3.25 | 1.73 | .09 |
| Video is a good choice for corporate advertising because its linearity: people are exposed to the entire message | 2.89 | 3.20 | -.95 | .34 |
| Hypermedia is not a good medium to present a message because people are still not familiar with it | 4.24 | 4.29 | -.13 | .90 |
| People have a good chance of being bored by a video presentation | 4.86 | 4.95 | -.24 | .80 |

A simple look at the frequencies of answers to the other two questions designed to measure individual's attitude towards the medium suggests, on the other hand, that the fourth hypothesis should not be totally discarded. Results for the dichotomous question about suggesting media format showed that both groups selected hypermedia more often than video: 41% of video viewers selected the video format and 58% selected the hypermedia format to present the message they were just exposed to. Among the hypermedia users group, only 16.7% selected the video format and 83.3% selected the hypermedia format. Another question used in the analysis of this hypothesis was the one about hypermedia usage. Subjects were asked if they have ever used hypermedia before and the results are reported in Table 3 below.

Table 3 - Hypermedia Usage Results

Question: Have you ever used any hypermedia programs before?

| | Video Group | Hypermedia Group |
|---|---|---|
| Many times | 34.5% | 29.2% |
| Few times | 44.8% | 54.2% |
| Only once | 6.9% | 8.3% |
| Never used | 13.8% | 8.3% |
| | 100% | 100% |
| | n=29 | n=24 |

A crosstabulation was calculated among these variables (group, hypermedia usage and format selected). The first crosstabulation, between group membership and hypermedia usage showed no statistically significant relation between

them ($X^2$= .73, d.f.=3, p>.9). Crosstabulation between group and format selected, however, indicates a statistically significant relationship ($X^2$= 3.8, d.f.=1, p<.052), that is, the type of medium subjects were exposed to did in fact influence their suggestion for adopting one medium versus another in the presentation of the message.

A crosstabulation between format selected and hypermedia usage, controlling for membership, showed no relationship between these variables, that is, hypermedia "past usage" did not influence their choice of formats (video group $X^2$= 1.1, d.f.=3, p<.8; hypermedia group $X^2$= 1.2, d.f.=3, p<.7).

# Chapter Five

## Discussion and Limitations

The objective of this study was to compare the relative effectiveness of two media—videotape and hypermedia—in disseminating information about a corporation. The main purpose was to analyze the influence of media format when presenting a message to an audience that might not be highly involved with the topic being presented. An experiment was conducted to check for differences between the group that was exposed to a video presentation and the group that was exposed to a hypermedia software and how both of these groups differed from a control group. The content of both media was the same as was the duration of message exposure. The independent variable was the format of information and the dependent variables were attitude and recall.

The research was based on the Elaboration Likelihood Model (ELM), which is a model designed to explain the role of a message's central and peripheral cues to attitude change. Despite some controversy regarding if and when peripheral cues influence consumers' attitudes and choices, ELM and the literature reviewed provide support for the potential of developing favorable attitudes toward product/service/company, through the use of peripheral advertising cues. The use of advertising elements that are irrelevant to forming a reasoned opinion about the product/service/company may be desirable because these

peripheral cues may enhance the odds of consumers cognitively processing an ad. The medium used to present a message can be considered a peripheral cue to influence individuals' attitude towards the product/service/company, depending on two factors: the ability and motivation of the audience and how important is the topic presented to them.

As mentioned earlier in chapter 2, persuasion via the peripheral route is a potentially successful strategy and could lead to attitudes that are persistent, resistant and predictive of future behavior. It would be reasonable to expect, therefore, that the characteristics of the medium, although playing a secondary role or being used as a peripheral cue to the transmission of the message may affect the audience's overall perception of the message. In this sense, the first hypothesis suggested that the use of high-technology media in corporate advertising would influence individuals' attitude towards a corporation. Although results showed significant difference between the two groups that were exposed to the message and the control group, the results were not sufficient to reject the null hypothesis that there is no difference between the use of hypermedia and video. Only the scale designed to measure individuals' overall attitude towards a corporation that uses new technology to reach its customers showed a more positive impact of the medium hypermedia (the only significant difference was between the hypermedia group and the control group in this dimension of attitude).

Based on this statistical result, some conclusions can be made. First, the exposition to the message does seem to have an impact on attitude formation and attitude change. Therefore, one may conclude that companies should continue to advertise, not only its products and services but also itself. Second, although the differences between the groups under study were not statistically significant, the hypermedia group had a greater mean for all three scales measuring different attitude dimensions towards a corporation. This minimal difference between the groups may suggest that the selection of types of media employed to deliver advertising messages deserves further analysis, particularly regarding the use of new technologies by companies that rely on intense research and development (R&D).

Factors that might have influenced the results of this hypothesis include initial attitude (familiarity with Ameritech) and number of exposures. First, if individuals are already familiar with a company, they are more likely to have developed an attitude towards it (positive or negative). In this case, a single exposure to corporate advertising through a new medium may not have been sufficient to influence their attitude towards the corporation (as it might happen with other media as well). The experiment attempted to obtain an unbiased group distribution in the hopes of equalizing the chances of each group including individuals with well-formed opinions. But since it was not designed to measure the

respondents' pretest familiarity with Ameritech, there was always a chance that an uneven distribution of this attribute could have tainted the frequency of responses.

An interesting enhancement to future similar experiments would be the inclusion of multiple exposure episodes. Since the effects are also moderated by the complexity of the ad, the overall evaluations of complex ads become more positive with more exposure. Moreover, as previously mentioned in chapter two, there is a tradeoff in the use of different routes of persuasion. It may be harder to change attitude via the central route, than via peripheral cues. In the first case, individuals tend to carefully consider the arguments and integrate it to existing knowledge, while in the second route the persuasion process is not so conscious. On the other hand, more exposures to the cues and message is likely to be necessary before this route can become as effective. Therefore, a constant pattern of use of new technology to present messages may be necessary for a corporation to develop an effective peripheral cue. In this debate, it is important to note that, despite the ability of hypermedia users to control their exposure to the message (and thus repeat any video portion as many times as desired), their contact with the message and medium was also restricted to a single episode. Finally, one should also note that a single exposure episode was apparently enough to influence individuals' attitudes towards the content, what suggests

that the need for repetitive exposures may be limited to the first hypothesis of this study.

The second hypothesis stated that the attitude towards the content would vary depending on the media used to present it. The prediction was that hypermedia users would develop a more favorable attitude towards the content than video viewers. The statistical results, as reported in the previous chapter, supported this hypothesis and findings are in accordance with the theory presented in chapter two. The second postulate of the Elaboration Likelihood Model indicates the importance of a person's ability and motivation to evaluate the issue-relevant arguments in a message. The predictions of this hypothesis were based on the assumption that, if the amount of effort an individual spends to evaluate a message depends on his/her motivation (among other things), the medium can be used as a motivating instrument to help individuals scrutinize the message. In this particular case, because of what was assumed to be a relatively unimportant content (the message consisted of a description of technological systems for elementary and middle schools) for the respondents, the medium could be used either as a peripheral cue or as a persuasive argument (ELM's postulate three). In any case, it seems like the unique attributes of hypermedia did play a role in the enhancement of the medium as a peripheral cue. The fact that people could explore the material in the sequence they wanted (no linearity) and at the pace of their

choice apparently had an impact in the way they reacted to the content.

The third hypothesis suggested that hypermedia's unique characteristics generate a tendency toward deeper content recall, while video favors more breadth of content. In the experiment, this proposition determined that although hypermedia users would recall less breadth of content than video viewers, they should have a higher recall of specific topics of the content than the video viewers. The statistical results did not support this hypothesis, however. In fact, the expected difference in breadth of content recall actually proved to exist in the opposite direction of this study's predictions. For the second part of the hypothesis, related to higher recall of specific topics, the difference between the groups was not statistically significant.

In an ex post facto reflection of the results, this researcher has considered a number of competitive explanations arising from the typically artificial conditions present in most controlled experiments. First of all, in order to make the video and hypermedia experience comparable, both message content and time of exposure had to be artificially determined to be the same for the two groups. In a real life scenario, however, the time of exposure is hardly controllable and audience members tend to enter and/or leave the room at different moments. Thanks to hypermedia's non-linear structure and user control, it can prove to be more

effective than video in retaining the attention of audience members for longer periods of time. While such natural behavior would cause serious problems of differential mortality in this experiment, following studies would do well to incorporate such strategy in the measure of recall by hypermedia users. A second artificial setting of the experiment was an implicit limitation in the way individuals can explore the medium. Because the amount of time people would have to explore the software was fixed, and people were just aware that they would have to answer a questionnaire after that, they might have explored the software concerned about "doing well" in the questions. As it happens when studying for an exam, the students may have tried to quickly explore the whole software thinking that the questions would cover all topics presented.

Another competitive explanation for the observed results is based on a consideration that the measured reaction was based on a first-time interaction with a new software. One should consider qualifying this third hypothesis, adding that it may not work for initial or fortuitous uses of hypermedia software, but only when the individual is already somewhat familiar with the structure of the message presentation. In other words, maybe the first reaction to a new interactive software is to explore the different screens as much as you can, to really "get the feel of it" before going "deeper." Note, however, that this limitation is associated only to the depth versus breadth of the recall and not to the reaction to

the content, which hypothesis two suggest to be actually higher for hypermedia, rather than video users.

The lack of depth in the content recall of hypermedia users can be further attributed to two other reasons. This specific Ameritech software displayed all the information in one single layer or level of menus, allowing users to easily and quickly review all topics and demonstrating an atypical breadth of recall. It is possible that if other layers were available with the information broken in smaller pieces and in more details, a sharper distinction between breadth and depth of content recall could have emerged in the experiment. Finally, the open-ended character of the items designed to measure this hypothesis may have turned into a bias factor, as the questionnaire was mainly composed of close-ended items. In this sense, as it happens in most recall studies, these items could be only a measure of just how much people are really willing to write about a topic, and not the extent of their recall. Future studies on hypermedia recall would do well to design shorter open-ended questionnaires focused only on this aspect of the media.

One possibility that cannot be disregarded is that the hypothesis was actually in the wrong direction, that is, hypermedia is indeed effective in influencing breadth of content recall. Taking advantage of this tecnology, users are able to explore the content at their own pace, in the order they want and it is possible that this may influence breadth of content.

The fourth hypothesis predicted that the attitude towards video and/or hypermedia would vary depending on the medium to which subjects were exposed. The dichotomous question that asked whether subjects would suggest presenting the message in a video format or in a hypermedia format showed that both groups selected hypermedia more often than video. Furthermore, the crosstabulation results between group membership and format selected indicated that the exposition of subjects to different media did influence their suggestion for adopting one medium versus another in the presentation of the message. This is an important finding for the purpose of this study. The task of media selection faced by advertising professionals, and influenced by other communication professionals, is not an easy one. They need to know who is the consumer of the product/service they are trying to sell/offer, and what is the best, most efficient way to reach them. Being aware of all the media options and potentials is extremely necessary to increase their chance to succeed. As showed by the results, if communication professionals are aware of the new options to reach customers and their advantages, they may be more likely to suggest new communication options. While different media may be appropriate for different communication tasks, the use of new technologies may provide these professionals with an innovative tool to reach consumers tired of the "same old media." Besides the traditional advertising goals of

informing consumers about products and services, hypermedia may also help the public enjoy the advertising piece itself, what supposedly could affect their evaluation and subsequent purchase of a product/brand.

Future studies designed to compare attitude towards such media may be improved by considering some issues that emerged in this experiment. It is possible, for instance, that respondents would have more bases for comparison had they watched or experienced both the video and the hypermedia software. The general statements used in the semantic differential scales could also be problematic, since the advantages of each medium may be more or less evident in different cases. In this sense, a sharp difference in attitude towards the media may not have emerged because respondents refused to agree with broad statements of superiority/inferiority of each medium. Ultimately, Fishbein predicts that the attitude towards the medium may be just a matter of learning. According to him, as people learn more about the characteristics and features of objects, they will develop a positive or negative attitude, depending on their evaluation. Thus, making students aware of hypermedia characteristics and features will help them develop/change their attitude towards this medium and, hopefully, consider this medium as a new option for advertising.

## General Study Limitations on Generalization

This was an exploratory experiment designed to identify the primary value of hypermedia for corporate advertising and further research on each of the topics studied is encouraged. Like all studies, this experiment presents some limitations for the generalization of findings. Probably the most important limitation is the small size of the sample employed. Although the collaboration of some Communication professors was secured ahead of time, the incentives offered to volunteering students may have been relatively weak to attract more participants.

A second limitation was associated with the experimental design itself which, as a post test only, did not include a pretest. The problem with no pretesting is that researchers must just assume that the groups are equivalent as a result of randomization, though this assumption cannot be verified because there is no pretest. Randomization is the best way to neutralize the effects of any external variable that might result in differences among groups that received treatment. If all other conditions or attributes have an equal chance of being present in any group, variations should be due to the independent variable. Due to the difficulties in recruiting respondents and setting up laboratory conditions for this experiment, a less than perfect randomization procedure was employed. Volunteers were assigned to groups by the order of arrival, that is, subjects were assigned to the hypermedia group and then to video and control group. Although not conforming to the traditional randomization procedures and

employing a sample of convenience, there is little reason to believe that internal validity was threatened, since no differential distribution of extraneous attributes can be inferred from respondents' order of arrival. Furthermore, the results of the comparison made among the groups in relation to demographics, electronic equipment ownership and new media usage showed that there was no statistically significant differences among the three groups, which were thus comparable.

Although this researcher assumed that Ameritech's message would be of little personal relevance for the MSU students that volunteered in this experiment (and that is why a deeper investigation of their involvement with the topic was not conducted, as it is usually done in ELM research), the results showed that individuals were quite involved with the topic presented. If this is indeed the case, the Elaboration Likelihood Model would predict that the medium itself would become an argument in a central route of persuasion, and some of the previous analyses would have to be reconsidered. This effect might have influenced the first hypothesis and involvement results more than the other ones. However, it is this researcher's contention that this is an illusory finding associated with the attempt by respondents of providing "socially desirable" answers. Moreover, because the group selected for this study is highly aware of communication research, it is conceivable that subjects tried to guess the purpose of this research and some of the expected answers.

According to Rosenthal and Rosnow (1984), the so called "Hawthorne Effect" is widely quoted in psychology and sociology studies as "a tag label for the power of suggestion in experimental research." It refers to the fact that subject awareness of participating in a research study might elicit socially desirable responses. Individuals might be more aware and responsive to experiment cues than they would be in real-life situations.

As mentioned previously in this chapter, the positive attitudes that advertisers want to inspire in the audience may take time to develop. A learning process is involved in the interaction with a new medium and single treatment experiments may fall short on obtaining conclusive findings on this regard. Since no long-term measurements were taken, the long-term impact of the medium was not assessed by this exploratory experiment. This researcher urges interested parties to conduct further longitudinal studies to measure the delayed effects of corporate advertising through hypermedia.

# Consent Form

## Questionnaire on Corporate Commercial Reactions

Your participation in this experiment will provide useful information about the influence of different kinds of media in the impact of corporate advertising.

Your cooperation is greatly appreciated.

All information is confidential and kept anonymous, so you can be perfectly honest when answering the questions.
Participation in this study is voluntary. You indicate your agreement to participate in this study by completing and returning this questionnaire.

If you have any questions, please ask the person administering the questionnaire for guidance.

If you have any questions regarding this study, contact Flavia Duarte at 355-7945.

## Hypermedia Group Questionnaire

**1)** Following is a list of some of the products and services offered by Ameritech. Some of them were part of the program that you have just seen. Check all the ones for which you remember seeing some information about in the hypermedia program:

( ) Long Distance Calls

( ) Distance Learning

( ) Library Resources

( ) Advanced Research & Networking

( ) Administration

( ) Home Learning

( ) Education Hotlines

( ) Faxtra

( ) Paging services

( ) Centrex

( ) Intersite Networking

( ) Interactive Video

( ) Voice Mail

( ) Audiographics

( ) Networked Instruction

( ) Calling card for students

**2)** Select two (2) topics that you can best remember and write down all the information about them that you can recall (such as topic definition, what it is used for, who is/are the user(s), any testimony(ies) that you remember, what did they say...).

**Topic 1** - Use the space below to write your answer

**Topic 2** - Use the space below to write down all the information about the second topic that you can recall (such as topic definition, what it is used for, who is/are the user(s), any testimony(ies) that you remember, what did they say...).

**3)** You have just been exposed to a lot of information on Ameritech operations. Among the many media adopted to promote its operations are videotape and hypermedia programs. The latter consists of a computerized interactive software, like the one you have just experienced. For the following statements, indicate how much you agree/disagree by putting an "X" closer to the word that best describes your opinion. The middle space indicates you are "indifferent". This is not a test so there is no correct answer to consider. We are interested in learning about your overall impressions, based on what you have just seen.

| | | |
|---|---|---|
| 01) Ameritech provides reliable access to information | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 02) Ameritech is a leader in researching advanced services that customers need/want | Strongly Agree | Strongly Disagree |
| 03) Companies have a better change of reaching their customers if they diversify their media selection | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 04) Interactive multimedia, or hypermedia (CD-Roms, computer-based kiosks of information...) is a good choice for corporate advertising because of its non-linearity: people are able to explore deeply the topics that interest them most | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 05) Ameritech is not doing much to improve its services through new technology | Strongly Agree | Strongly Disagree |
| 06) The use of new communication technology to reach a company's customers gives it an advantage over its competitors | Strongly Agree | Strongly Disagree |
| 07) Ameritech takes advantage of modern equipment to offer services | Strongly Agree | Strongly Disagree |
| 08) Ameritech is not responsive to customer needs | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 09) Ameritech has become increasingly involved in developing new technologies | Strongly Agree | Strongly Disagree |
| 10) If a company uses innovative, new communication technology, it has better chance to be known as being a leader in its line of business | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 11) Customers have more control over the message when it is presented in a hypermedia format | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 12) Hypermedia is not a good medium to present a message because people still don't know how to use it | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |

| | | |
|---|---|---|
| 13) Ameritech is one of the American's leading information companies | Strongly Agree | Strongly Disagree |
| 14) Companies should not be using new, unproven communication technology if they have being reaching their customers so far using traditional media | Strongly Agree | Strongly Disagree |
| 15) Ameritech devotes to much attention to new technologies instead of focusing on the services that the company already provides | Strongly Agree | Strongly Disagree |
| 16) The cost of a hypermedia presenation is greater than the cost of a video presentation | Strongly Agree | Strongly Disagree |
| 17) Traditional media (newspaper, magazine, radio, TV) is still the best way of reaching customers | Strongly Agree | Strongly Disagree |
| 18) People are more involved in hypermedia presentations | Strongly Agree | Strongly Disagree |
| 19) Ameritech does not yet provide the information tools needed to help schools access information | Strongly Agree | Strongly Disagree |
| 20) Ameritech does not understand the communication needs of schools | Strongly Agree | Strongly Disagree |
| 21) Using new technology to present Ameritech's products and services distances Ameritech from its customers | Strongly Agree | Strongly Disagree |
| 22) People don't pay a lot of attention to hypermedia presentations | Strongly Agree | Strongly Disagree |
| 23) Most schools in the U.S. are not likely to adopt the communication solutions presented | Strongly Agree | Strongly Disagree |
| 24) Communication technology can make the learning process more efficient | Strongly Agree | Strongly Disagree |
| 25) Improving education is an important piece of Ameritech's business | Strongly Agree | Strongly Disagree |
| 26) People pay attention to a video presentation | Strongly Agree | Strongly Disagree |
| 27) Communication technology is not the answer to enhance traditional teaching methods | Strongly Agree | Strongly Disagree |
| 28) Video is a good choice for corporate advertising because its linearity: people are exposed to the entire message | Strongly Agree | Strongly Disagree |

| | | |
|---|---|---|
| 29) Hypermedia is not a good media to present a message because people are still not familiar with it | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 30) People have a good change of being bored by a video presentations | Strongly Agree | Strongly Disagree |
| 31) Ameritech is one of the most successful telecommunication companies in the U.S. | Strongly Agree | Strongly Disagree |
| 32) A company that uses new communication technology to present its products and services, gives you the impression that it is a modern corporation | Strongly Agree | Strongly Disagree |

**4)** Please indicate your overall impression of the material you have just seen. Put an "X" on the space closer to the word that best describes your opinion. The middle space indicates you are "indifferent".

Like _ _ _ _ _ _ _ Dislike

Not informative _ _ _ _ _ _ _ Informative

Helpful _ _ _ _ _ _ _ Not helpful

Not confusing _ _ _ _ _ _ _ Confusing

Interesting _ _ _ _ _ _ _ Not interesting

Relevant _ _ _ _ _ _ _ Not relevant

Attract your attention _ _ _ _ _ _ _ Didn't attract your attention

Well presented _ _ _ _ _ _ _ Poorly presented

Not important _ _ _ _ _ _ _ Important

Clear _ _ _ _ _ _ _ Unclear

**5)** How much is the subject presented going to influence your life today?

very much _ _ _ _ _ _ _ not at all

**6)** How much thought did you put into evaluating this subject?

a lot of thought _ _ _ _ _ _ _ no thought at all

**7)** How likely is this topic going to influence your life in the near future?

very likely __ __ __ __ __ __ __ very unlikely

**8)** How likely are you of being in a position to influence a decision about using or not the products and services presented to you?

very likely __ __ __ __ __ __ __ very unlikely

**9)** If you were given the responsibility of presenting the message you have just seen to Ameritech customers, would you suggest the message be presented in a video format or a hypermedia format?

( ) Video ( ) Hypermedia

**10)** What is your age? _____

**11)** Gender:

( ) Female

( ) Male

**12)** Your major _____

**13)** Do you own a: (please check all that apply)

( ) Computer

( ) VCR

( ) TV

( ) Modem

( ) CD-Rom driver

**14)** Have you ever used any hypermedia programs before?

( ) Yes, just once

( ) Yes, a few times

( ) Yes, many times

( ) No

**15)** Have you ever used: (please check all that apply)

| | | | |
|---|---|---|---|
| a. Internet | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| b. World Wide Web | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| c. E-mail | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| d. Gopher | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| e. BBS (Bulletin Board Systems) | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |

## Video Group Questionnaire

**1)** Following is a list of some of the products and services offered by Ameritech. Some of them were part of the program that you have just seen. Check all the ones for which you remember seeing some information about in the videotape:

( ) Long Distance Calls

( ) Distance Learning

( ) Library Resources

( ) Advanced Research & Networking

( ) Administration

( ) Home Learning

( ) Education Hotlines

( ) Faxtra

( ) Paging services

( ) Centrex

( ) Intersite Networking

( ) Interactive Video

( ) Voice Mail

( ) Audiographics

( ) Networked Instruction

( ) Calling card for students

**2)** Select two (2) topics that you can best remember and write down all the information about them that you can recall (such as topic definition, what it is used for, who is/are the user(s), any testimony(ies) that you remember, what did they say...).

**Topic 1** - Use the space below to write your answer

**Topic 2** - Use the space below to write down all the information about the second topic that you can recall (such as topic definition, what it is used for, who is/are the user(s), any testimony(ies) that you remember, what did they say...).

**3)** You have just been exposed to a lot of information on Ameritech operations. Among the many media adopted to promote its operations are videotape and hypermedia programs. The latter consists of a computerized interactive software, like the one you have just experienced. For the following statements, indicate how much you agree/disagree by putting an "X" closer to the word that best describes your opinion. The middle space indicates you are "indifferent". This is not a test so there is no correct answer to consider. We are interested in learning about your overall impressions, based on what you have just seen.

| | | |
|---|---|---|
| 01) Ameritech provides reliable access to information | Strongly Agree _ _ _ _ _ _ _ _ | Strongly Disagree |
| 02) Ameritech is a leader in researching advanced services that customers need/want | Strongly Agree _____ | Strongly Disagree |
| 03) Companies have a better change of reaching their customers if they diversify their media selection | Strongly Agree _ _ _ _ _ _ _ _ | Strongly Disagree |
| 04) Interactive multimedia, or hypermedia (CD-Roms, computer-based kiosks of information...) is a good choice for corporate advertising because of its non-linearity: people are able to explore deeply the topics that interest them most | Strongly Agree _ _ _ _ _ _ _ _ | Strongly Disagree |
| 05) Ameritech is not doing much to improve its services through new technology | Strongly Agree _____ | Strongly Disagree |
| 06) The use of new communication technology to reach a company's customers gives it an advantage over its competitors | Strongly Agree _____ | Strongly Disagree |
| 07) Ameritech takes advantage of modern equipment to offer services | Strongly Agree _____ | Strongly Disagree |
| 08) Ameritech is not responsive to customer needs | Strongly Agree _ _ _ _ _ _ _ _ | Strongly Disagree |
| 09) Ameritech has become increasingly involved in developing new technologies | Strongly Agree _____ | Strongly Disagree |
| 10) If a company uses innovative, new communication technology, it has better chance to be known as being a leader in its line of business | Strongly Agree _ _ _ _ _ _ _ _ | Strongly Disagree |
| 11) Customers have more control over the message when it is presented in a hypermedia format | Strongly Agree _ _ _ _ _ _ _ _ | Strongly Disagree |
| 12) Hypermedia is not a good medium to present a message because people still don't know how to use it | Strongly Agree _ _ _ _ _ _ _ _ | Strongly Disagree |

| | | |
|---|---|---|
| 13) Ameritech is one of the American's leading information companies | Strongly Agree | Strongly Disagree |
| 14) Companies should not be using new, unproven communication technology if they have being reaching their customers so far using traditional media | Strongly Agree | Strongly Disagree |
| 15) Ameritech devotes to much attention to new technologies instead of focusing on the services that the company already provides | Strongly Agree | Strongly Disagree |
| 16) The cost of a hypermedia presenation is greater than the cost of a video presentation | Strongly Agree | Strongly Disagree |
| 17) Traditional media (newspaper, magazine, radio, TV) is still the best way of reaching customers | Strongly Agree | Strongly Disagree |
| 18) People are more involved in hypermedia presentations | Strongly Agree | Strongly Disagree |
| 19) Ameritech does not yet provide the information tools needed to help schools access information | Strongly Agree | Strongly Disagree |
| 20) Ameritech does not understand the communication needs of schools | Strongly Agree | Strongly Disagree |
| 21) Using new technology to present Ameritech's products and services distances Ameritech from its customers | Strongly Agree | Strongly Disagree |
| 22) People don't pay a lot of attention to hypermedia presentations | Strongly Agree | Strongly Disagree |
| 23) Most schools in the U.S. are not likely to adopt the communication solutions presented | Strongly Agree | Strongly Disagree |
| 24) Communication technology can make the learning process more efficient | Strongly Agree | Strongly Disagree |
| 25) Improving education is an important piece of Ameritech's business | Strongly Agree | Strongly Disagree |
| 26) People pay attention to a video presentation | Strongly Agree | Strongly Disagree |
| 27) Communication technology is not the answer to enhance traditional teaching methods | Strongly Agree | Strongly Disagree |
| 28) Video is a good choice for corporate advertising because its linearity: people are exposed to the entire message | Strongly Agree | Strongly Disagree |

| | | |
|---|---|---|
| 29) Hypermedia is not a good media to present a message because people are still not familiar with it | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 30) People have a good change of being bored by a video presentations | Strongly Agree | Strongly Disagree |
| 31) Ameritech is one of the most successful telecommunication companies in the U.S. | Strongly Agree | Strongly Disagree |
| 32) A company that uses new communication technology to present its products and services, gives you the impression that it is a modern corporation | Strongly Agree | Strongly Disagree |

**4)** Please indicate your overall impression of the material you have just seen. Put an "X" on the space closer to the word that best describes your opinion. The middle space indicates you are "indifferent".

Like _ _ _ _ _ _ _ Dislike

Not informative _ _ _ _ _ _ _ Informative

Helpful _ _ _ _ _ _ _ Not helpful

Not confusing _ _ _ _ _ _ _ Confusing

Interesting _ _ _ _ _ _ _ Not interesting

Relevant _ _ _ _ _ _ _ Not relevant

Attract your attention _ _ _ _ _ _ _ Didn't attract your attention

Well presented _ _ _ _ _ _ _ Poorly presented

Not important _ _ _ _ _ _ _ Important

Clear _ _ _ _ _ _ _ Unclear

**5)** How much is the subject presented going to influence your life today?

very much _ _ _ _ _ _ _ not at all

**6)** How much thought did you put into evaluating this subject?

a lot of thought _ _ _ _ _ _ _ no thought at all

**7)** How likely is this topic going to influence your life in the near future?

very likely __ __ __ __ __ __ __ very unlikely

**8)** How likely are you of being in a position to influence a decision about using or not the products and services presented to you?

very likely __ __ __ __ __ __ __ very unlikely

**9)** If you were given the responsibility of presenting the message you have just seen to Ameritech customers, would you suggest the message be presented in a video format or a hypermedia format?

( ) Video ( ) Hypermedia

**10)** What is your age? _____

**11)** Gender:

( ) Female

( ) Male

**12)** Your major _____

**13)** Do you own a: (please check all that apply)

( ) Computer

( ) VCR

( ) TV

( ) Modem

( ) CD-Rom driver

**14)** Have you ever used any hypermedia programs before?

( ) Yes, just once

( ) Yes, a few times

( ) Yes, many times

( ) No

**15)** Have you ever used: (please check all that apply)

| | | | |
|---|---|---|---|
| a. Internet | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| b. World Wide Web | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| c. E-mail | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| d. Gopher | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| e. BBS (Bulletin Board Systems) | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |

## Control Group Questionnaire

1) Among the many media adopted to promote corporate operations are videotape and hypermedia programs. The latter consists of a computerized interactive software, like a CD-Rom . For the following statements, indicate how much you agree/disagree by putting an "X" closer to the word that best describes your opinion. The middle space indicates you are "indifferent". This is not a test so there is no correct answer to consider. We are interested in learning about your overall impressions.

| | | |
|---|---|---|
| 01) Ameritech provides reliable access to information | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 02) Ameritech is a leader in researching advanced services that customers need/want | Strongly Agree | Strongly Disagree |
| 03) Companies have a better change of reaching their customers if they diversify their media selection | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 04) Interactive multimedia, or hypermedia (CD-Roms, computer-based kiosks of information...) is a good choice for corporate advertising because of its non-linearity: people are able to explore deeply the topics that interest them most | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 05) Ameritech is not doing much to improve its services through new technology | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 06) The use of new communication technology to reach a company's customers gives it an advantage over its competitors | Strongly Agree | Strongly Disagree |
| 07) Ameritech takes advantage of modern equipment to offer services | Strongly Agree | Strongly Disagree |
| 08) Ameritech is not responsive to customer needs | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 09) Ameritech has become increasingly involved in developing new technologies | Strongly Agree | Strongly Disagree |
| 10) If a company uses innovative, new communication technology, it has better chance to be known as being a leader in its line of business | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 11) Customers have more control over the message when it is presented in a hypermedia format | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |

12) Hypermedia is not a good medium to present a message because people still don't know how to use it

Strongly Agree _____ Strongly Disagree

13) Ameritech is one of the American's leading information companies

Strongly Agree _____ Strongly Disagree

14) Companies should not be using new, unproven communication technology if they have being reaching their customers so far using traditional media

Strongly Agree _____ Strongly Disagree

15) Ameritech devotes to much attention to new technologies instead of focusing on the services that the company already provides

Strongly Agree _____ Strongly Disagree

16) The cost of a hypermedia presenation is greater than the cost of a video presentation

Strongly Agree _____ Strongly Disagree

17) Traditional media (newspaper, magazine, radio, TV) is still the best way of reaching customers

Strongly Agree _____ Strongly Disagree

18) People are more involved in hypermedia presentations

Strongly Agree _____ Strongly Disagree

19) Ameritech does not yet provide the information tools needed to help schools access information

Strongly Agree _____ Strongly Disagree

20) Ameritech does not understand the communication needs of schools

Strongly Agree _____ Strongly Disagree

21) Using new technology to present Ameritech's products and services distances Ameritech from its customers

Strongly Agree _____ Strongly Disagree

22) People don't pay a lot of attention to hypermedia presentations

Strongly Agree _____ Strongly Disagree

23) Most schools in the U.S. are not likely to adopt the communication solutions presented

Strongly Agree _____ Strongly Disagree

24) Communication technology can make the learning process more efficient

Strongly Agree _____ Strongly Disagree

25) Improving education is an important piece of Ameritech's business

Strongly Agree _____ Strongly Disagree

| | | |
|---|---|---|
| 26) People pay attention to a video presentation | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 27) Communication technology is not the answer to enhance traditional teaching methods | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 28) Video is a good choice for corporate advertising because its linearity: people are exposed to the entire message | Strongly Agree | Strongly Disagree |
| 29) Hypermedia is not a good media to present a message because people are still not familiar with it | Strongly Agree _ _ _ _ _ _ _ | Strongly Disagree |
| 30) People have a good change of being bored by a video presentations | Strongly Agree | Strongly Disagree |
| 31) Ameritech is one of the most successful telecommunication companies in the U.S. | Strongly Agree | Strongly Disagree |
| 32) A company that uses new communication technology to present its products and services, gives you the impression that it is a modern corporation | Strongly Agree | Strongly Disagree |

10) What is your age? _____

11) Gender:

( ) Female

( ) Male

12) Your major _____

13) Do you own a: (please check all that apply)

( ) Computer

( ) VCR

( ) TV

( ) Modem

( ) CD-Rom driver

14) Have you ever used any hypermedia programs before?

( ) Yes, just once

( ) Yes, a few times

( ) Yes, many times

( ) No

15) Have you ever used: (please check all that apply)

| | | | |
|---|---|---|---|
| a. Internet | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| b. World Wide Web | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| c. E-mail | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| d. Gopher | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |
| e. BBS (Bulletin Board Systems) | ( )Yes, a few times | ( )Yes, many times | ( ) Never used |

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