

PLACE IN RETURN BOX to remove this checkout from your record.
 TO AVOID FINES return on or before date due.
 MAY BE RECALLED with earlier due date if requested.

DATE DUE	DATE DUE	DATE DUE
NOV 09 2004	MAY 16 2005	
11 09 04		
MAY 09 2006		
OCT 23 2006		
MAY 28 2008		

**ADVERTISING IN INTERACTIVE TELEVISION:
HOW AUDIENCES' INTERACTIONS WITH ADS AFFECT
PERCEPTIONS OF PROGRAMS AND BRANDS**

By

Joo-Hyun Lee

A DOCTORAL DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

DOCTOR OF PHILOSOPHY

Department of Advertising

2003

ABSTRACT

ADVERTISING IN INTERACTIVE TELEVISION: HOW AUDIENCES' INTERACTIONS WITH ADS AFFECT PERCEPTIONS OF PROGRAMS AND BRANDS

By

Joo-Hyun Lee

Consumers are passively exposed to most commercials in a conventional television environment unless they take active steps to avoid them. On the contrary, interactive product placements (iPPL) in an interactive television (ITV) environment would deliver the advertising message only upon the consumer's request. Traditional product placements (PPL) aim to put the audience in contact with the advertiser's brand through simple exposures, so traditional PPL studies focus on the effect on the consumer's memory. This dissertation recognizes that the iPPL can generate actual interactions from the consumer while watching the program, and examines how the iPPL and its interactive natures can change the audience's consumption patterns of programs and the advertising effectiveness in an ITV environment.

The primary purpose of this dissertation is to predict the types of products, programs, and audiences that would generate improved effectiveness of iPPL before ITV becomes widely diffused. In particular, this dissertation examines the audience's involvement with product categories, involvement with the program, attitudes toward the program, and attitudes toward the characters in the program in relation to the audience's attitude toward the brand and the interactions made to iPPLs. An experiment was conducted in a computer lab with 396 participants, and an interactive ITV interface created for the experiment was played on computer screens.

The results indicate that a consumer with higher levels of involvement with a product category could recall more brands and demonstrated more active interactions with the iPPL compared to the consumers with lower levels of product involvement. This dissertation proposed that higher levels of involvement with a program will cause a lower amount of interactions and recalled brands, but the results show that the program involvement and the amount of interactions are positively associated. Consumers' positive attitudes toward the program and a character in the program are found to be transferred to the attitude toward the brands. Consumers who demonstrated more active interactions with iPPLs showed a bigger increase in their levels of involvement with the program compared to the consumers who demonstrated less active interactions.

Finally, structural equation models were analyzed to investigate the overall relationships of the variables. The results were specific to each particular brand and character. These findings have implications for advertisers and the current television industry.

Copyright by

JOO-HYUN LEE,

2003

DEDICATION

To the Lord, who started me on the way, led me to this place,
and guided me all the way to this very moment.

ACKNOWLEDGMENTS

I would like to thank the professors in my dissertation committee, Dr. Bonnie B. Reece, Dr. Steven M. Edwards, Dr. Carrie Heeter, and Dr. Hairong Li, who have always been an invaluable resource, taking turns at being tough critic, sage counsel, and reliable friend. I have to deliver special thanks to Dr. Bonnie B. Reece, my advisor and mentor, for her unflinching supports and for carefully guiding me through all phases of my doctoral program. I thank Dr. Carrie Heeter for her invaluable comments and insightful discussions about the nature of interactivity. I owe a debt of gratitude to Dr. Steven M. Edwards and Dr. Hairong Li, who, first as teachers and later as co-authors, taught me much of what I know about interactive advertising today.

I am grateful to my colleagues in the Mass Media Ph.D. Program for all their support and friendship. In particular, I would like to thank James for the hours he spent discussing life and research with me. I am also grateful to Zoo Hyun and his wife, Yoon-Keun, for the countless meals and help they provided.

This research was financially supported by Dissertation Competition Grant from the American Academy of Advertising (AAA) and by Research Grant from the *Ad Research* in Korea. I would like to place on record my deep appreciation for Dr. Kristina Frankenberger, Chair of the AAA Research Committee, and for Dr. Woo-Hyun Won, Editor of the *Ad Research* for the supports they provided, which made this dissertation possible.

I cannot thank my family enough for their continued love and encouragement. In particular, I thank my parents and my brother, Sanghyun, for being patient cheerleaders from halfway around the world. I am deeply grateful to my wife Jounghae for always being there and pointing me forward when the going got tough, and for all the sacrifices she made of her valuable time in order to facilitate the completion of my doctoral program.

TABLE OF CONTENTS

LIST OF TABLES	xi
LIST OF FIGURES	xiv
Chapter 1. Introduction	1
1.1. Interactive Television (ITV)	2
1.2. Television Commerce (T-commerce)	3
1.3. The Purpose of the Study	4
Chapter 2. Interactive TV: Description, History, & Advertising	6
2.1. What is ITV?	6
2.2. History of Development	10
2.3. Forecast	15
2.4. Ads in ITV	17
2.5. Product Placements	19
2.6. Product Placements in ITV	25
Chapter 3. Involvement	27
3.1. Involvement in General	27
3.2. Involvement with Product Categories	30
3.3. Involvement with Programs	32
3.4. Attitude toward the Program and Characters	36
3.5. Gender	40
Chapter 4. Interactivity and Interaction	42
4.1. Interactivity – The Construct	44
4.2. Interactivity – Other Effects and Antecedents	48
4.3. Interactivity and Interaction	50
4.4. Value of Interaction	56
4.5. Interaction – Antecedents	58
4.6. Interaction – Consequences	62
Chapter 5. Methodology	66
5.1. Analysis Plan	66
5.2. Design and Sample	66
5.3. Development of the Stimulus Material	68
5.4. Procedure	73
5.5. Measurement	75

6.1. Manipulation Check	78
6.2. Sample Size and Composition	80
6.3. Scale Reliability	80
6.4. The Effects of Product Involvement on Interactions	80
6.5. The Effects of Product Involvement and Attitude toward the Program on Recall	83
6.6. The Effects of Program Involvement on Recall and Interactions	84
6.7. The Effects of Attitude toward the Program on Interactions	85
6.8. The Effects of Attitude toward the Program on Attitude toward Brands in the Program	86
6.9. The Effects of Attitude toward the Characters (of the Program) on Interactions and Recall	89
6.10. The Effects of Attitude toward the Characters on the Attitude toward Paired Brands	91
6.11. The Effects of Gender on Interactions	93
6.12. The Relationship between Recall and Interactions	93
6.13. The Effects of Interactions on Changes in the Level of Product Involvement	94
6.14. The Effects of Interactions on Changes in the Level of Program Involvement	95
6.15. The Interaction Effects of Product Involvement and Program Involvement on Interactions (Study 1)	96
6.16. The Interaction Effects of Product Involvement and Attitude toward Program on Interactions and Attitude toward Brands (Study 2)	98
6.17. The Interaction Effects of Program Involvement and Attitude toward Program on Interactions and Attitude toward Brands (Study 3)	102
6.18. The Interaction Effects of Attitude toward Program and Attitude toward Characters on Interaction and Attitude toward Brands (Study 4)	105
6.19. The Interaction Effects of Product Involvement and Attitude toward Characters on Interactions and Attitude toward Brands (Study 5)	115
6.20. Test of the Hypothetical Model and Structural Relations	124
6.21. SEM: Results	128

Chapter 7. Conclusions and Discussion	131
7.1. The Role of Involvement in Advertising Effectiveness	131
7.2. The Role of Attitude in Advertising Effectiveness	133
7.3. The Relationship between Attitude and Involvement	136
7.4. The Role of Interactions in Program Consumption	136
7.5. Limitations and Suggestions for Future Studies	140
7.6. Conclusions and Implications	144
 APPENDIX A. Questionnaire for the Experiment	 149
APPENDIX B. Instruction for the Experiment	165
APPENDIX C. Descriptive Statistics	177
BIBLIOGRAPHY	182

LIST OF TABLES

Table 1.	Hypotheses	67
Table 2.	Program used for the Main Experiment	71
Table 3.	Summary of Product Information Embedded in iPPLs	72
Table 4.	Experimental Procedure	75
Table 5.	Manipulation Check of Program Involvement	78
Table 6.	Product Involvement	79
Table 6.4.1.	Descriptive Statistics and Reliabilities for Scales Used in the Study	81
Table 6.4.2.	Descriptive Statistics on Product Involvement (BG) and Interactions	82
Table 6.4.3.	Relationship between Product Involvement and Interactions	82
Table 6.5.1.	Descriptive Statistics on Brand Recalls	83
Table 6.5.2.	Relationship between Product Involvement, A_{PROG} , and Recalls	84
Table 6.6.	Interactions and Recalls in Program Involvement Conditions	85
Table 6.7.	Relationship between A_{PROG} and Interactions	85
Table 6.8.1.	Calculation of Interacted- and Non-interacted A_B : Example	87
Table 6.8.2.	A_B Changes in Non-Interacted Brands: Statistical Significance	88
Table 6.8.3.	Regression: Relationship between A_{BID} and A_{PROG}	88
Table 6.9.1.	Descriptive Statistics on Character: A_{CHAR} and Interactions	90
Table 6.9.2.	Relationship between A_{CHAR} and Interactions	90
Table 6.9.3.	Descriptive Statistics on A_{CHAR} and Recalls of Paired Brands	91
Table 6.9.4.	Regression: Relationship between A_{CHAR} (combined) and Recalls	91
Table 6.10.1.	Descriptive Statistics on Character: A_{CHAR} and Interactions	92

Table 6.10.2.	Relationship between A_{CHAR} and A_B	92
Table 6.11.	Amount of Interactions Across Genders	93
Table 6.12.	Regression: Relationship between Interactions and Recalls	93
Table 6.13.1.	Descriptive Statistics on Product Involvement Changes	94
Table 6.13.2.	Relationship between Interactions and Product Involvement	95
Table 6.14.1.	Descriptive Statistics on Program Involvement Changes	96
Table 6.14.2.	Relationship between Interactions and Program Involvement	96
Table 6.15.	Interactions Effects: Product Involvement $\times$ Program Involvement	98
Table 6.16.1.	Attitude toward Program: Creating Conditions	99
Table 6.16.2.	Interactions Effects: Product Involvement $\times$ Program Attitude	100
Table 6.16.3.	Interactions Effects: Product Involvement $\times$ Program Attitude	101
Table 6.17.1.	Interactions Effects: Program Involvement $\times$ Program Attitude	103
Table 6.17.2.	Interactions Effects: Program Involvement $\times$ Program Attitude	104
Table 6.18.1.	Attitude toward the Character: Creating Conditions	106
Table 6.18.2.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Chandler	106
Table 6.18.3.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Rachel	108
Table 6.18.4.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Ross	109
Table 6.18.5.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Joey	110
Table 6.18.6.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Monica	111
Table 6.18.7.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Phoebe	111
Table 6.18.8.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Chandler	112
Table 6.18.9.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Joey	112
Table 6.18.10.	Interactions Effects: $A_{PROG} \times A_{CHAR}$: Monica	113

Table 6.18.11. Interactions Effects: $A_{\text{PROG}} \times A_{\text{CHAR}}$: Phoebe	113
Table 6.18.12. Interactions Effects: $A_{\text{PROG}} \times A_{\text{CHAR}}$: Rachel	114
Table 6.18.13. Interactions Effects: $A_{\text{PROG}} \times A_{\text{CHAR}}$: Ross	114
Table 6.19.1. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Chandler	116
Table 6.19.2. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Joey	116
Table 6.19.3. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Monica	117
Table 6.19.4. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Phoebe	117
Table 6.19.5. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Rachel	118
Table 6.19.6. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Ross	118
Table 6.19.7. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Chandler	119
Table 6.19.8. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Ross	119
Table 6.19.9. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Joey	122
Table 6.19.10. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Monica	122
Table 6.19.11. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Phoebe	123
Table 6.19.12. Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Rachel	123
Table 6.19.13. Summary of the Results	124
Table 6.21.1. Initial Result: Inexpensive Appliance / Joey	129
Table 6.21.2. Initial Result: Kitchenware / Monica	130
Table 6.21.3. Initial Result: Dessert / Phoebe	130

LIST OF FIGURES

Figure 1.	History of ITV Development	14
Figure 2.	Thumbnail of Stimulus Material: Step 1	68
Figure 3.	Thumbnail of Stimulus Material: Step 2	69
Figure 4.	Thumbnail of Stimulus Material: Step 3	70
Figure 6.18.1.	Interactions Effects: $A_{\text{PROG}} \times A_{\text{CHAR}}$: Chandler	107
Figure 6.18.2.	Interactions Effects: $A_{\text{PROG}} \times A_{\text{CHAR}}$: Rachel	108
Figure 6.18.3.	Interactions Effects: $A_{\text{PROG}} \times A_{\text{CHAR}}$: Ross	109
Figure 6.19.1.	Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Chandler	120
Figure 6.19.2.	Interactions Effects: Product Involvement $\times A_{\text{CHAR}}$: Ross	120
Figure 6.20.1.	Hypothesized Model	125
Figure 6.20.2.	Tested Model	127

Chapter 1. Introduction

Television is a passive and one-way mass communication medium that has been providing entertainment and information for millions of people around the world. However, television is changing and has recently started to become an interactive two-way communication platform. The interactive television (“ITV”) industry started to take shape in the late 1990’s.

There are several factors that have facilitated the emergence of this new medium (or an “advanced” medium), but the important technologies that make up the medium’s foundation include computer hardware technologies, developments of telecommunication network atmosphere such as the Internet, large bandwidth that allowed the high speeds necessary for processing digital video, innovations in software technologies that eased the creation of digital contents, and digitization of broadcasting transmission (Swann, 2000). Various trials and errors from experiments on the medium during the last decade have provided many lessons. Furthermore, the content and applications developed early have showed that the concept is viable.

Many ITV descriptions use various new technological innovations to illustrate the medium. But ITV can be simply explained as a convergence of the two sectors – the Internet, which is a telecommunication domain, and the traditional media-oriented television sector. This convergence offers interactive services to the audience via the television or computer. Consequently, the audience can use e-mail, browse the Internet, shop, seek information they want, and play games with their TV. Also, they can enjoy the very same services from their computer, bringing television into the monitor screen.

There is no universally agreed upon definition of interactive television. It is even being called different names, such as enhanced television, advanced television, synchronized television, and so on. Nevertheless, people share an agreement over the functions that the medium may and will provide. In fact, some of them are already being used. For instance, the subscribers of Microsoft WebTV can play along with TV game shows. Time Warner offered its subscribers in New York City interactive ads (Swedlow, 2000). Little by little, the audience is becoming accustomed to the idea of interactive television or interactivity in television.

The industry is also showing signs that it considers the medium to be serious and lucrative. For instance, more companies are now building divisions dedicated to broadband/ITV strategies, and Multiple System Operators (MSOs) began launching ITV network services to test new technologies, content, and the potential for television commerce (t-commerce) revenues (Swedlow, 2000). Even though they are not yet available on a massive scale, positive changes are occurring around the world to make this new medium a reality soon.

1.1. Interactive Television (ITV)

What exactly is interactive television (ITV)? Is it the Internet via television? How is it different from the interactive services that are currently provided by the Digital Broadcast Satellite (DBS) and digital cable services? Is it different from HDTV? What benefits does it offer? These are the questions lingering over average consumers' heads. Verifying this, a study conducted by In-Stat Group reported that the biggest obstacle

facing ITV in North America was confusion over what exactly ITV is, and more importantly, what consumers want it to be (in Pastore, 2002).

The issue regarding the confusion about the concept and definition of this new medium will be addressed in depth in the following chapter. Meanwhile, the functions of ITV may be simply described as any two-way, interactive services that are being offered to the audiences through the TV sets. In the ITV environment, the television works as a host of applications such as entertainment services (pay-per-view, video-on-demand, and games), information services (electronic program guides, local information, Internet access, and distance learning), t-commerce services (shopping, electronic catalogs, insurance, and banking), and other services (e.g., online voting). Consequently, an audience's conventional experience with television will be greatly transformed. For example, people will be able to read more about the topic presented during a show, watch a show on the viewer's own schedule, and purchase goods associated with a program using the aforementioned features.

1.2. Television Commerce (T-commerce)

One reason that ITV is an attractive alternative is t-commerce (television commerce or TV-based e-commerce). Along with subscription fees and advertising sales, t-commerce is another important revenue generator for ITV. In fact, the industry believes t-commerce to be very viable, and many recent studies are introducing results that will only strengthen this belief. For example, Yankee Group (summarized in ITV Marketer, 2002) reported that digital TV is expected to surpass PC-based Internet penetration in Western Europe by 2005, leading to \$17 billion in t-commerce revenues in Europe by

2006. OVUM (2000, in Pastore, 2000) predicted t-commerce revenue would be worth \$45 million by 2005. Also, a study by TechTrends, Inc. showed that 46 percent of consumers are interested in t-commerce. It continues to report that one in three consumers showed an interest in TV-based banking and investing, and that the most likely users for t-commerce include premium cable and DBS subscribers, active online shoppers and frequent customers of home shopping channels (TechTrends, 2000). Also, the fact that more than 80 percent of the active audiences of home shopping channels are interested in t-commerce suggests positive ideas to QVC and HSN regarding their future in t-commerce atmosphere (Pastore, 2000).

1.3. The Purpose of the Study

On the surface, the viability of interactive television (ITV) seems to be obvious. However, the problems that the industry faces in developing and advancing ITV include: (1) lack of technology standards; (2) lack of research on the kinds of products and services for t-commerce that work best in an ITV environment; (3) advertisers' lack of knowledge on ITV; and (4) difficulty in testing advertising due to a low number of installed set-top boxes. The current study aims to provide answers to some of these issues. Particularly, it examines how added interactivity to television will change (1) the way the ads are presented to the audiences and (2) the way the audiences respond to the ads.

To examine these issues, the current study proposes a new ITV ad format – Interactive Product Placement (“iPPL”). iPPL refers to a type of advertising that are embedded in the programming. The biggest difference of iPPL from traditional product placements (PPLs) is that the iPPL would be designed to generate immediate actions of

the audience (e.g., requesting more product information and purchasing). Traditional PPL focused on being recognized and perceived by the viewers, and thus many related studies examined the role of exposure on consumers' memory. This dissertation examines the role of products exposure on memory, attitude toward the advertised brand, and consumers' interaction with the ads. Other placement-related factors such as the consumer's involvement level with the product class and the program, and their attitude toward the program or the elements in the program will be examined as well. Interactive commercials are just like traditional television commercials except that they will be able to provide further information upon request (i.e., click) or provide different versions according to the audience characteristics.

Of course, there will be other types of ads in ITV, such as interactive commercials and interactive infomercials. The ads (and programs) from home shopping channels will also benefit from the added interactivity. However, the audiences are already experiencing a certain degree of interactivity without the ITV features in today's commercials and home shopping channels (e.g., calling the number on the screen to purchase the product immediately). Therefore, this study concentrates on the interactive product placement (iPPL). Hence, the following chapter discusses ITV in more depth in terms of its concept, history, and its connection to the traditional television media environment. It will be followed by the discussions on ITV ads, including the analogy to the traditional product placement practices.

Chapter 2. Interactive TV: Description, History, & Advertising

2.1. What is ITV?

Some interactive services have already become common on many pay-TV networks, through digital cable TV operators, and to most DBS subscribers. However, these applications (e.g., Electronic Programming Guides and Video On Demand) that are currently available to audiences are insufficient to be considered an ITV.

The potential of ITV functions has been described in many academic and industrial reports, but there is little agreement on the extent of interactivity that will be demonstrated to its audience. The individual viewers will be able to choose the ending of a program; or, for a lower level of interactivity, the viewers will be able to select different camera angles of sports replays, or they will be able to see on-demand textual commentaries of certain players or plays. Likewise, it is believed that viewers will be able to click and see information about a certain product the character is using in a particular show. The lowest level of interactivity will allow viewers to watch a program after it has already been broadcast (i.e., delayed watch), and they will be able to pause and replay the show, just as they can do using current digital recording technology, such as TiVo. Furthermore, audiences will be able to display program-related information on their TV screen, as they can now using electronic programming guides (EPG) as a part of digital TV services. Undoubtedly, the possible advantages that interactive television can provide, or the priority of its features that audiences would seek, may vary greatly.

What does it take to be an ITV? Although the current study places emphasis on the *advertising* in an ITV environment, information will first be presented on the

medium's contents, technology, and business model in an attempt to better understand the nature of advertising in ITV. Then, the history of developments and the technological specifications will follow.

2.1.1. ITV: Contents

The types of content in an ITV environment are endless. Prominent applications include a technologically enabled digital video-on-demand (VOD) and electronic programming guides (EPG). VOD services use digital video server technology, lets the audience access the program database, and allows them to watch on their own schedule. Swedlow (2000) noted that VOD would also provide an attractive billing model to the program providers as its business model resembles that of the current pay-per-view industry. Other on-demand services besides VOD include digital video recording (DVR). DVR is also called "personal video recording (PVR)," and it allows audiences to pause, rewind, and even digitally save programs in the storage device such as a hard disk to watch them whenever it is convenient for the viewers. Although VOD is not fully available at the moment, DVR services are already available in the U.S. from providers such as TiVo and ReplayTV.

The EPG is also available on digital cable and DBS systems. The EPG that appears on the television screen allows the audiences to navigate, search, and sort the programs by channel, time, type, and so on. Companies like Gemstar, TV Guide, GIST, ReplayTV, and TiVo are currently providing EPG service. Currently, the information in the EPG is presented only in a format set up by the service provider. However, it is expected that the EPG would work as a "TV portal" once the viewers become able to build their own program guide.

Viewers will be also able to interact with the programs (e.g., quiz shows) or other audiences (e.g., via instant messaging, chat rooms, e-mails). They will be able to obtain further program-related information (including shopping options) directly on the television screen. Channels specializing on various commercial services can be provided (e.g., shopping, e-mail, games, advertising, etc.), and public services such as distance learning and online voting will be also provided directly on the television screen (Jacobs & Dransfield, 1998).

In terms of the viewing experience, the menus and various options are designed to be presented in graphical boxes as we see in sports broadcasts today, or in separate fields such as those from CNN news where the main screen is reduced in one corner and various pieces of information (e.g., weather, stock, etc.) are displayed in other places. WebTV now puts an icon “i” on the screen to provide more information on an advertiser or a content provider. Swedlow (2000) predicts that such an interface will be used for the programs touting direct purchase of the related products.

2.1.2. ITV: Technologies and devices:

Remote control is expected to be the primary input device. Other devices such as wireless keyboards or wireless mice are considered as inconvenient and thus expected to be secondary devices. To improve the convenience, a rudimentary version of the voice-activated remote control has been already introduced to the market (e.g., Hammacher Schlemmer, InVoca). Touch screens on televisions might also be used. Using personal data assistant (PDA)-types of devices to integrate remote control functions (and telephony) is also being tested.

The chief device in an ITV environment will be the set-top box, which has been associated with the cable industry for a long time. The new boxes will carry microprocessors, memory, conditional access technology (i.e., storage device), and a connection to the network (Swedlow, 2000). Some ITV operators may choose to use server technology at the cable headend and let viewers download applications and contents from the server in order to prevent the set-top boxes from becoming obsolete because of technological developments in hardware.

2.1.3. ITV: Revenues:

Subscription fees are an important revenue source. For instance, a report from In-Stat/MDR (in Barlett, 2002) predicted that the number of TV households using on-demand services (e.g., VOD) worldwide would increase from 1.3 million in 2001 to over 33 million in 2005, and that the revenues in North America would increase from \$86 million to over \$1.75 billion in 2005, which all suggest an optimistic future for ITV. On the contrary, some studies present less optimistic views on the subscription-based business models. For example, a study by TechTrends (2000) showed that only 1 in 17 consumers is willing to pay more than \$3 for ITV services. It means that additional revenues will have to come from advertising. But for ITV, DVR may pose a threat to advertisers, since the device allows the viewers to easily skip commercials.

T-commerce, on the other hand, will be another critical revenue generator. An example can be found from the service in the U.K. BSkyB offers the service, called “Open,” to its DBS subscribers (Swann, 2000). During the 1999 holiday season, it provided a special channel for interactive home banking, grocery shopping, e-mail, games, and so on. As a result, Open reported more than \$1 million in t-commerce sales.

Although the sales have declined after the holiday season, there are two factors that could change that trend. First, its service did not include enhanced television capabilities by which viewers would have far more purchasing options. Second, the number of subscribers continued to increase after the season, which forecasts a positive future of the service. Considering that more purchase options are made available, it is evident that t-commerce will play a pivotal role in an ITV business model.

2.2. History of Development

2.2.1. 1970's – VBI and QUBE

In the early 70's, the Vertical Blanking Interval ("VBI") was used to send analog signals, which eventually carried closed captions in the U.S. and teletext in the U.K. Teletext content included news headlines, sports scores, travel reports, movie reviews, weather, and so on. Later, U.S. companies used these signal to send out programming information for EPGs. In the mid-90's, early developers of ITV platforms were already exploring new types of broadcasting over the VBI because of the low cost and an already established standard. Thus, broadcast data today still have to be transmitted over the VBI to digital set-top boxes or other data receivers. The history of these two-way set-top boxes started from QUBE, the first commercial ITV network (Swedlow, 2000).

Developed by Warner cable in 1977, QUBE allowed viewers to vote, select movies to watch, and play along with game shows. Although the services were rather basic, QUBE demonstrated that viewers not only wanted interactive features, but would pay for them.

2.2.2. 1980's – HDTV and Digital TV

In the early 1980's, HDTV was first proposed (MacInnes, 1994). Despite its superior image, many problems such as the degree of digital adoption, transmitting method, broadcast spectrum, and compression scheme arose. The FCC tried to forge an agreement regarding the controversy, yet failed to establish an international standard. In the meantime, the existing analog spectrum is being taken back from broadcasters and used for other data services such as mobile communications and datacasting. Such services may be added to digital signal transmissions, especially for HDTV. Currently, some HDTV programming is available in the U.S., but the high prices of digital TV sets are preventing them from being widely distributed (Swedlow, 2000). This lack of standard and the slow growth of usage are holding back manufacturers and program developers from making the hardware and software for HDTV. AS a result, digital broadcasting is experiencing slow growth. On the other hand, digital broadcasting is experiencing rapid growth in Europe, and subscribers there can access the Internet, enjoy digital teletext, and engage in t-commerce (Greenspan, 2002; Jacobs & Dransfield, 1998).

2.2.3. 1990's – Signs for emerging ITV

Until the mid 1990's, many developments occurred to make ITV a reality. Narrowcasting began and diverse channels have appeared over the analog networks around U.S. Computer technologies equipped the television and film industries the capability to digitally edit and produce work. The Internet made a widely distributed interactive multi-medium a reality, by which every individual became able to produce a Web site with rich content including audio and video. As a result, a new interactive media industry was born.

There have been many trials and errors as well. Among those, Time Warner launched an interactive service in 1994 and provided VOD, shopping, games, and EPG services to 4,000 households in Florida (Swann, 2000; Swedlow, 2000). Although the high operational cost caused the project to be abandoned, some lessons were learned – the service itself should have been free to the audience, tiered pricing models did not work, and VOD was found to be a highly popular application.

2.2.4. Intercast and WebTV

In 1995, Intel introduced “Intercast,” which was a TV tuner card bundled with software and the contents from NBC (Miller, 2001; Tedesco, 1996). Although it represented an example of interactive data and television content integrated under a single medium (i.e., PC), insufficient content made the product unsuccessful (Swedlow, 2000). In 1996, WebTV introduced a standalone set-top box with Internet service. One year later when WebTV was purchased by Microsoft, its three set-top box models not only featured two-way VBI broadcasting, but its content producers were able to use the services of various ITV databroadcasters to provide enhanced interactive services (McClellan, 1997; Swann, 2000).

2.2.5. ReplayTV and TiVo

ReplayTV and TiVo launched their own standalone products in 1999 (Hale, 1999b). These products used hard drives to offer users DVR capabilities. Also, EPGs were already included in the service. Although the products have not been very successful, the DBS industry recognized the potential of these types of products, and has begun to offer similar services using its own set-top boxes.

2.2.6. Industry's reaction – Enhanced TV and Synchronized TV

How will the industry react to all of the technological developments, and what will they present as a standardized form of ITV service? Problems exist, especially in establishing an industry standard. However, Enhanced TV and Synchronized TV emerged as leading contenders concerning how ITV will progress.

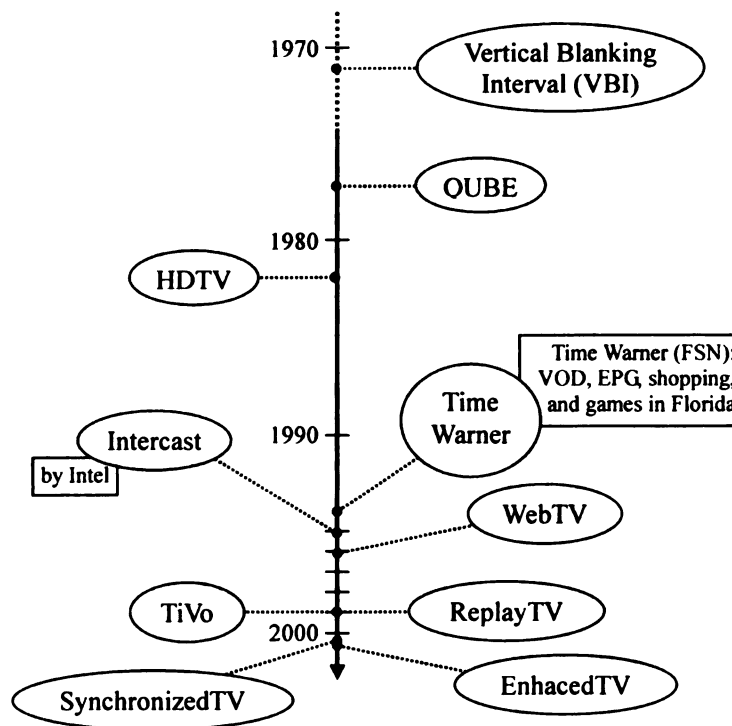
First, Enhanced TV represents a specific type of ITV. In its interface, the elements and data are transmitted via the TV signal and then overlaid (not integrated) on the video broadcast. The Enhanced TV services currently provided by Wink Communications offers limited but still interactive choices to the audiences. The audiences can see a small icon on the TV screen like WebTV, and it can be clicked to provide further information (Hale, 1999a). It ranges from product information offered by the advertiser to the data from the Weather Channel (Swedlow, 2000).

Second, Synchronized TV represents an Internet application, which may be described as an integration of the Web and TV (e.g., WebTV). Basically, anything in the Internet environment can be done in the Synchronized TV environment while the program is on air (Swedlow, 2000). Synchronized TV receives HTML data broadcasts that are synchronized with television programming. Applications can be downloaded from Web sites and its audiences can interact with other viewers, call for further information on the program, and use e-commerce capabilities provided by the advertisers. A company called WorldGate recently launched a relevant service – Go!TV – that allows “channel hyperlinking. (Swedlow, 2002)”

A third technology called Hypervideo enables producers to embed “hotspots” inside a program (Sun Microsystems, 2001). The hotspots are clickable spots in the TV

screen to provide links to the Web, another program/channel, or to call up other elements in sync with the streaming video. However, they are different from the abovementioned “icons” in Enhanced TV, in that the icons generally stay in the same spot during the program while the hotspots can travel on the screen in sync with the program. Many companies and institutions including Digital Renaissance, Apple, Veon (now a part of Philips), and the MIT Media Lab have developed authoring tools for hypervideo, and they all provide embedded hotspots that will jump to another video segment, piece of text, audio clip, picture, or Web page (Swedlow, 2000). Altogether, the technology reinvents the concept of television as an interactive medium and suggests attractive applications to advertising and e-commerce industry. Figure 1 illustrates the history of ITV development.

Figure 1. History of ITV Development



2.3. Forecast

Technological possibilities of ITV have been verified thus far. Marketing research has suggested that people would like to have ITV around them. Considering the definition of ITV, it might even be said that ITV is already here to some degree. On the other hand, the social adoption of the medium has been a different topic, and there are questions about whether ITV would be easily adopted by the general public (Jacobs & Dransfield, 1998; Lee & Lee, 1995).

Jacobs and Dransfield (1998) assumed that ITV would be an integration of TV and the Internet, thus allowing more interactivity to the audiences. Although they concluded that ITV would be *gradually* integrated with the current television industry to reduce the consumer resistance and indifference, they noted that watching television is a group (e.g., family) activity, and thus consuming television and the Internet involve different patterns. For instance, unlike television, the Internet is considered as personal medium, and because of this difference, they argued that the public would not be interested in accessing the Internet using their TV sets. ITV industry also recognizes surfing the Web on television as a failed concept (Greenspan, 2002).

Although not focused on browsing the Internet on television, Lee and Lee (1995) also examined people's pattern of television watching, and suggested that, in order for ITV to be successful, people's current patterns, motivation, and gratifications of television watching must be taken into account. They predicted that the audience would not always prefer interactivity in television because they usually would like to sit back and relax when they watch TV. Specifically, Lee and Lee (1995) noticed that people enjoy low-involvement as well as high-involvement viewing, and predicted that ITV will

hinder this pattern of TV watching to slow its adoption rate. Lee and Lee (1995) assumed that ITV would always require interactions and extra attention from the audiences.

Considering that ITV provides only the *capacity* for more interaction and involvement, it may be anticipated that whether audiences pay more attention or not would depend upon the individual's decision. That is, if they don't want extra interaction, they can watch it like a conventional television.

Second, Lee and Lee (1995) used the term "routinization" to describe people's loyalty to certain programs. The study showed that over 50 percent of those who chose a specific program responded that they almost always watched the program and knew that the program would be on at a particular time. The researchers also indicated that this pattern would be an obstacle to viewers exploring new types of programs that require interactivity and also to the programs seeking new audience groups. However, this type of challenge is not exclusive to ITV, but to all types of new programs. On the other hand, it may be expected that heightened involvement due to interactivity will produce less "grazing" activities, which generally describe the audience's constant channel changing using a remote control (Eastman & Newton, 1995). Eastman and Newton (1995) showed that most grazing occurred between programs rather than during programs.

Third, relaxation has been considered an important benefit that the audience may get from traditional television viewing that does not demand interaction (Lee & Lee, 1995). It has been implied that it is for this reason that ITV will not be greatly appreciated. However, it must be noted that such benefit may not apply to all program types. For instance, the audience's internal states (e.g., attitude, emotional state) toward watching television may vary across different program types. It is expected that the added

interactivity to the program would provide different features to the audience of different programs (e.g., team statistics in sports programs, shopping options to dramas, etc.).

Finally, conventional television is also known as a “storytelling medium,” and Lee and Lee (1995) doubt that ITV may have much to offer to this nature. This charge is related to ITV’s interactivity that might distract viewers who are involved in an engrossing story and thus interferes with viewers’ need for low engagement uses of television as well. Again, it might be expected that this unwelcomed distraction would occur in only certain types of programs. Despite all these weakness, Lee and Lee (1995) predicted that commercials and infomercials would make strong use of interactive capabilities.

Not all charges against ITV appear to be justified. It is certain that technology now advanced sufficiently for ITV to compete in the market. Determining whether consumers will prefer ITV services to current DBS, digital cable, or other similar services require further deliberation. Although the viability of ITV is an important topic that needs further discussion, it is not the focus of this study, and it will not be discussed further. The primary focus lies in examining the ITV ad effectiveness based on what has been known about the medium’s characteristics. It should be noted that because advertising will be a very critical revenue generator for the medium, it is important to understand how the ads will attract the audiences.

2.4. Ads in ITV

Despite the facts that there is no pre-established universal standard for ITV technology and that there are no ITV ad formats that fully demonstrate the current ITV

technologies, the above discussions indicate that the ad format will allow real-time interactivity for the audience. However, there has been no academic research on the types of ITV ads or their effectiveness.

Conventional TV commercials are expected to benefit from added interactivity. Stroud (2002) showed that the implementation of the interactive commercial in the U.K. was successful in terms of the viewer's evaluation or their response rates. However, one threat to the TV commercials comes from DVR, which allows the audience to skip over commercials in an instantly recorded program. Some people underestimate this threat comparing it with the threat of VCRs in 1980s that turned out to be minor. But unlike the VCR that has been mostly used to play rented videos, the primary purpose of DVR is instant recording and replaying, by which the commercials may easily skipped and "zipped (i.e., fast-forwarding through pre-recorded commercials)." Despite this forewarning, Swann (2000) predicts that the ITV will actually be favored by the advertisers because of the interactive shopping. Some examples of interactive shopping and interactive commercials can be found from the industry's past experiments with commercials. For example, WebTV introduced the "Click-To-Video" ads, which are the banner ads that could be clicked by the WebTV subscribers. This banner ad let the audiences watch the TV commercial for the particular brand, and then eventually takes the audience to the advertiser's Web site. Although this example features a banner-commercial-Web site direction due to the limitation of the WebTV's unique characteristic, it shows what can be provided to the audience by interacting with a commercial. In an experiment in August 1999, RespondTV and Domino's Pizza tested their interactive commercial and t-commerce application while sponsoring a *Star Trek* marathon in San

Francisco area. During the Domino's commercials, a small icon was displayed on the screen with which the audiences could order a pizza by clicking it. 14% of the total subscribers actually ordered a pizza, and 96% of those who ordered responded that they would be inclined to order a pizza through the television again (Swann, 2000).

Commercials in the ITV atmosphere would provide audiences with further product information, an option for instant purchase, and a link to the advertiser's Web site upon request. Regardless of the advertising formats, the overall direction of ITV advertising is headed toward strengthening t-commerce opportunities. Considering that a popular application of t-commerce in an ITV environment will be the audience purchasing goods through a TV screen during a show, it may be expected that product information embedded in a program would work as an ad format in an ITV environment. This is critical particularly because that DVR technology offers viewers a way to skip traditional TV commercials, which might decrease both the reach and frequency — assumptions on which conventional advertising models are based. This new situation calls for new types of advertising in ITV. This study presents interactive product placements as a potential new advertising format for the new medium. Also, the characteristics of this format will be discussed.

2.5. Product Placements

TV commercials can be categorized based on the location in comparison with the programs (i.e., within a program, between programs). Widely used formats of advertising and other promotional practices in television include 15-, 30-, or 60-second commercials, infomercials, PPL, and sponsorships. Particularly, sponsorships (including end credits)

have not been considered as an advertising activity in a strict sense. But many sponsorships now appear in the form of a short commercials these days. The current study examines product placements in ITV.

Product placements (PPL) have been a popular advertising practice in movies. In the recently released movie *Minority Report*, which depicts society in 2054, a number of today's popular brands appear (e.g., BVLGARI, Lexus, Nokia, Gap). Characters in the *Men in Black* series have been wearing Ray Ban sunglasses, and the recent *007* movie series featured BMW as the "Bond Car." It must be noted at this point that the term *product* placement is somewhat misleading as the practice always refers to a placement of specific *brands*. In this regard, many studies use the term "brand placement," but this dissertation will use product placement as it is more commonly used in the industry.

Steortz (1987, in Karrh, 1998) defined product placement as "the inclusion of a brand name product package, signage, or other trademark merchandise within a motion picture, television, or music video (p.22)." Adding the paid nature of the practice to the description, Balasubramanian (1994) defined product placement as "a paid product message aimed at influencing movie (or television) audiences via the planned and unobtrusive entry of a branded product into a movie (or television program, p.31)." Karrh (1998) extended its boundary beyond movies and television programs and defined it as "the paid inclusion of branded products or brand identifiers, through audio and/or visual means, within *mass media programming* (p.33)."

Product placement represents an advertiser's attempt to overcome the difficult environments surrounding the television industry including increasing costs of commercials, cluttering messages due to competition, and audiences switching channels.

However, this practice is regulated by the Federal Communications Commission (FCC)'s sponsorship identification rules that apply only to the television programs made for television. Specifically, the rule states:

When a standard broadcast station transmits any matter for which money, services, or other valuable consideration is either directly or indirectly paid or promised to, or charged or received by, such station, the station shall broadcast an announcement that such matter is sponsored, paid for, or furnished, either in whole or in part, and by whom or on whose behalf such consideration was supplied: Provided, however, That "service or other valuable consideration" shall not include any service or property furnished without charge or at a nominal charge for use on, or for an identification in a broadcast of any person, product, service, trademark, or brand name beyond an identification which is reasonably related to the use of such service or property on the broadcast (47 C.F.R. §73.1212, 1996).

In short, television programs should reveal the sponsor if there have been any paid placements of brands for "more than a nominal" cost. Also, the rules describe that the placement can be allowed unless the placement appeared to be unreasonable. However, the sponsorship identification rules do not apply to the movies or movies broadcast on television, and thus advertisers can use a product placement strategy without being regulated.

Consequently, product placement has been flourishing in the movie industry. The top five movies in 1990 featured more than 160 product placements (Colford & Magiera, 1991). Academic studies on product placement have been concentrated on the context of movies. Many studies indicated that audiences were positive toward product placement practices (Babin & Carder, 1996; DeLorme & Reid, 1999; Gould, Gupta, & Grabner-

Krauter, 2000; Gupta & Gould, 1997; Karrh, 1998; Nebenzahl & Secunda, 1993). The common reasons have been reported as enhancing realism, helping character development, and providing a sense of familiarity (DeLorme, Reid, & Zimmer, 1994; Nelson, 2002). That is, audience members validate their usage of the brand, their own identity, their interpretation of the character in the movie (or program) by comparing their brand usage to that of the character in the movie (or program).

Marketers have also been favorable to the practice as it offers a captive audience with a greater reach than traditional advertisements, a way to show the brand in its natural environment, and a means of creating familiarity and even (indirect) celebrity endorsements for their product (Buss, 1998; Turcotte, 1995). Turcotte (1995) also noted low advertising clutter as another advantage of product placement. Furthermore, product placements represent an attractive source of financial support. As a result, the popularity of the practice, along with the accompanying price, has been rising. For example, Philip Morris paid \$350,000 to place its cigarette brand in the 1989 movie *License to Kill* (Miller, 1990). Exxon paid \$300,000 for a placement in *Days of Thunder* released in 1990 (Kanner, 1993). But Grover (2002) reported that Lexus paid \$5 million in order to put its futuristic (and not even commercially available) vehicle in the recent movie *Minority Report*. Separate from that financial investment, Lexus also helped design the vehicle for the movie. Although the practice is not ubiquitous in the television industry, it is expected that its adoption might greatly benefit the producers, especially considering that television sponsorship was reported to support 25 percent of the total production costs of a program (Des Roberts, 1994, in d'Astous and Seguin, 1999).

As a result, usage of PPL has become increasingly popular. One sign of the growing popularity of the practice is the increasing size of the (product placement) agency groups in the U.S. and U.K. (Curtis, 1996). It should be also noted that, despite the FCC's regulation of television industry product placements, placements made through an agency may be able to bypass the regulation (Warner, 1995, in Karrh, 1998).

McDonald (1996) reported that the television networks have received calls from the audiences asking where and how they could purchase the products placed in the programs. In 1999 NBC started using its Web site to let the audiences of *Passions* purchase jewelry and clothing appeared in the soap opera (Swann, 2000).

Balasubramanian (1994) noted that product placement – a “hybrid” commercial practice – could stimulate more persuasion than traditional advertising through its combined capability of advertising and publicity, and implied celebrity endorsement. Generally, studies on the effects of product placement have reported some effects on audiences' memory from placement. Law and Braun (2000) and Vollmers and Mizerski (1994) found that the placement increased the consumer's memory of the placed brand. Law and Braun (2000) found that *prominence* of placement was also positively associated with high recall and recognition. Karrh (1994) found that brands in previously unfamiliar categories became more memorable by placement than brands that were already familiar. Some studies, on the contrary, have reported no impact on the consumer's memory (e.g., Babin & Carder, 1986). Baker and Crawford (1995, in Karrh, 1998) also found that product placements affected consumers' short-term purchase intention. However, Vollmers and Mizerski (1994) found no impacts of product placements on consumer attitudes toward the brand or the actor. Karrh (1994) also found that consumers' evaluation of the brand

was not affected by the placement. Nebenzahl and Secunda (1993) noted that implicit placements in movies could generate negative ethical consumer concerns.

Some studies examined the effect of product placement based on the modality. Generally, audiovisual placements were found to be most effective for higher recall and recognition rates, but the superiority between verbal and visual placement is uncertain. Paivio (1986) noted that the visual mediators were superior to the verbal mediators when they are not simultaneously available. Verbal information is harder to be retained than visual information, which would imply that visual placement would be better recalled. Also, it may be related to the fact that visual-only placements are most common, and audiovisual placements are most expensive and hardest to achieve (Gupta & Lord, 1998). But the empirical evidence is inconsistent. Law and Braun (2000) showed that visual placements generated higher recall than audio placement and that audio placement produced higher recognition than visual placement. Avery and Ferraro (2000) found that brands that appeared verbally and those that appeared both verbally and visually at the same time (i.e., audiovisual) were portrayed more positively compared to those that appeared only visually. Similarly, Fischer (1996) found that a verbal mention of a brand generated higher recognition rate than visual placement. It is also supported by an industry practice. The Toronto Star (1991, in Karrh, 1998) reported that Walt Disney Company charged \$20,000 for a visual-only placement, \$40,000 for a verbal-only placement. This overall inconsistency might suggest that there is some other moderating factor in the effectiveness of product placements or that the effectiveness depends on the consumers' individual differences.

There are implementation difficulties for the practice. First of all, advertisers have little control over the content of the program/movie, and consequently it is not certain whether their brand would appear in a positive or negative light. Second, measuring its effectiveness has been a problem. Along with the aforementioned studies, other academic research tested the effectiveness of product placement with memory-based measures such as recall and recognition (e.g., Brennan & Dubas, 1999; Pracejus, 1995; Russell, 1998; Weaver & Oliver, 2000). Law and Braun (2000) employed an implicit measure (i.e., effect of exposure on product choice indirectly) and differentiated it from explicit measures (i.e., common recall and recognition measures) to reduce the truth effect, mere exposure effect, and the false familiarity effect. Nevertheless, they were memory-based tests.

In summary, product placements are becoming prevalent. However, there is little knowledge about whether they are effective and how to best measure their impact. The simple recall and recognition measures by themselves would not provide sufficient information regarding persuasion since they cannot predict attitude formation and change (e.g., Cacioppo & Petty, 1979; Greenwald, 1968; Insko, Lind, & LaTour, 1976; Petty, Cacioppo, & Schumann, 1983). Moreover, the reliability and validity of attitude measures are better than those of memory-based measures (Clancy & Ostlund, 1976; Gibson, 1983). Therefore, potential moderating factors influencing the effectiveness of product placement need to be explored, using different measures.

2.6. Product Placements in ITV – iPPL

A recent survey conducted by Cahners In-Stat/MDR (2002, in Pastore, 2002, January 23) implies that most consumers are aware that direct purchase while watching a TV program (e.g., buying Jennifer Aniston's sweater while watching *Friends*) is going to be available in ITV (in Barlett, 2002). As such, embedding ITV ads along with other t-commerce information is expected to be implemented using aforementioned “hotspot” technology in HyperVideo and SMIL (Synchronized Multimedia Integration Language). The iPPL is expected to provide a new paradigm to the current product placement practices in television. Traditional studies on PPL have been concerned with copytest-related outcomes such as consumers’ memory or attitude. But the iPPL will add another important response as they can generate consumers’ direct purchase. Considering this added feature, Baker and Crawford’s (1995, in Karrh, 1998) finding on traditional product placement provided a critical implication. They found that a mere brand appearance might impact short-term purchase intention. Consequently, it is expected that the added options of instant purchase might lead to actual sales when combined with increased purchase intention.

Some findings from past research product placement would be applicable to the iPPL. This dissertation examines the audience’s memory of advertised brands, attitudes toward the brands, and the actual interactions. As the potential factors, this dissertation examines the audience’s interaction with the iPPL, involvement with the programs and the product categories, attitude toward the program and the characters in the program. Main and interaction effects on audience response outcomes will be examined in the context of a sitcom. The following chapters will discuss previous studies with similar scopes and applicability to ITV. Hypotheses will be provided.

Chapter 3. Involvement

3.1. Involvement in General

A number of definitions of involvement emphasize the concept of self-relevance – the degree to which a person perceives that concept (or the object) to be personally relevant (Celci & Olson, 1988; Petty & Cacioppo, 1981; Richins & Bloch, 1986; Zaichkowsky, 1985). The definitions of involvement are categorized into two groups. The first group of studies defines involvement as an individual *state* (e.g., Andrews, Durvasula, & Akhter, 1990; Johnson & Eagly, 1989; Gardner, Mitchell, & Russo, 1978; Mitchell, 1981). The second group views the construct as a part of the *process* (e.g., Greenwald & Leavitt, 1984; Krugman, 1967). Representing the first group's view, involvement has been defined as “the motivational *state* induced by an association between an activated attitude and some aspect of self-concept” (Johnson & Eagly, 1989, p.293), “a situational *state* measured by the depth and quality of message-evoked cognitive responses” (Batra & Ray, 1983, p.309), and “an individual, internal *state* of arousal with intensity, direction, and persistence properties” (Andrews et al., 1990, p.28). On the other hand, Krugman (1965, 1967) defined it as the dimensions of a process that occurs during exposure to stimuli, and operationalized involvement as the amount of connections the person has between his/her own life and the stimulus. Greenwald and Leavitt's (1984, p.591) definition states “the allocation of attentional capacity to a message source, as needed to analyze the message at one of a series of increasingly abstract representation levels.”

Celci and Olson (1988) highlighted the role of personal goals and values in determining the degree of personal relevance. Leigh and Menon (1987) defined involvement based on the level of attention and depth of processing. Unlike many studies that advocated unidimensionality of involvement (e.g., Evrard & Aurier, 1996; Zaichkowsky, 1985), Laurent and Kapferer (1985) and Kapferer and Laurent (1993) advocated that it consisted of several factors resulting in involvement profiles. However, later research supported the unidimensionality of the construct (Evrard & Aurier, 1996).

Involvement is “one of the most important variables in consumer research” (Antil, 1984, p.203). It has been a popular topic as it has provided rich implications for the persuasion process among consumers (e.g., Krugman, 1965; Petty & Cacioppo, 1983; 1986; Celsi & Olson, 1988; Hoffman & Novak, 1996; Cho, 1999). Studies that view persuasion in terms of attitude change use involvement as a motivational factor in explaining the underlying cognitive processes (Chaiken, 1980; Petty & Cacioppo, 1979, 1981). Describing the relationship between motivation and involvement, Andrews et al. (1990) noted that, although the properties of involvement (i.e., intensity, direction, and persistence) are also properties of motivation, motivation represents a broader construct. Motivation facilitates involvement-related consequences (Petty et al., 1983; Wright, 1973).

Explaining people’s attitude formation process, Petty and Cacioppo (1981, 1983) established the well-known elaboration likelihood model (ELM). This persuasion model focuses on the process of attitude formation or change, not the attitude per se, and it illustrates that the process is influenced by the level of involvement. The ELM suggests two distinct routes to attitude change – central and peripheral routes – when consumers

encounter persuasive communication. Petty and Cacioppo (1986) noted that a person's motivation, ability, and opportunity to process message arguments determine the route of elaboration. Change of attitude via the central route occurs through a person's attentive and deliberate processing of message-relevant information. It is consistent with the findings that comprehension, learning, and retention of relevant information are important factors in high involvement state (Bettman, 1979; McGuire, 1976). Attitude changes via the central route are also regarded as enduring and predictive of the person's behavior (Cialdini & Petty, 1981; Petty & Cacioppo, 1980). On the other hand, the change of attitude via the peripheral route occurs by peripheral cues that are less relevant to the information. In the peripheral route, consumers do not process the message-relevant information intensively, and the changes in attitude are regarded as temporary and less predictive of behavior. In short, the ELM views attitude formation or change to be a result of the influence of central and/or peripheral cues. The level of involvement determines the importance of those central and peripheral cues.

A person's involvement state influences the person's motivation to process the information (that is relevant to the stimuli). Consistently, involvement studies have noted that, in a high involvement state, individuals would pay more attention to the message (Gardner et al., 1978), experience deeper levels of information processing (Leigh & Menon, 1987), elaborate on the ad's message (Petty & Cacioppo, 1986), produce self-generated thoughts (Greenwald & Leavitt, 1984), and have more "connections" to the message (Krugman, 1965). Supporting this view, Petty et al. (1983) found that the strength of argument quality had a greater impact in high involvement condition. However, studies have found that the level of involvement would not influence the

valence of attitudes. Andrews et al. (1990) explained that whether the attitude is positive or negative would be determined by individual reactions to the stimulus elements. Likewise, Chattopadhyay and Nedungadi (1990) found no relationship between involvement and attitude toward the ad.

Zaichkowsky (1985, p.342) defined involvement as “a person’s perceived relevance of the object based on inherent needs, values, and interests.” The object may refer to anything under the person’s consideration including a product class, an ad message, programs, or purchase intention. Most involvement studies in advertising focus on consumers’ involvement with the product category (e.g., Bloch, 1981; Bowen & Chaffee, 1974; MacInnins & Jaworski, 1989), advertising message (e.g., Greenwald & Leavitt, 1984; Laczniaak & Muehling, 1993), and the program (e.g., Lord & Burnkrant, 1993; Tavassoli, Schultz, & Fitzsimons, 1995). This dissertation examines the role of consumers’ involvement with product class and programs on advertising effectiveness. The following sections discuss these involvement types in detail.

3.2. Involvement with Product Categories

Bloch (1982) defined product (class) involvement as a state in the relationship between consumer and product that reflects the amount of interest, arousal or emotional attachment evoked by the product in the consumer. Celci and Olson (1988) noted that the consumer’s involvement with a product (i.e., personal relevance of a product) is represented by the strength of the linkage between the consumer’s individual needs, goals, and values, and his/her product knowledge. Product involvement is considered to be a state that may affect or moderate “the means by which brand attitudes are formed or

changed” (Laczniak & Muehling, 1993, p.302). Evrard and Aurier (1996) found that product involvement was the most predictive factor of purchase behavior, and placed it in the center of the “person-object relationship.”

Product involvement is considered to be an enduring involvement (e.g., Laczniak & Muehling, 1993). That means consumers’ level of involvement with the product is the state that affects consumer behavior on an *ongoing* basis (Bloch, 1981). On its relationship with advertising, MacInnis and Jaworski (1989) described product involvement as being central in determining whether a consumer may be motivated and/or able to process the advertising message. Laczniak and Muehling (1993) explained advertising message involvement as a motivational state related to message processing. This process-related involvement, unlike product involvement, is considered to be situation-specific and transitory in nature. Product involvement influences advertising involvement and the individual’s processing of the message, and this process influences the formation or change of attitude toward the ad (Laczniak & Muehling, 1993). Consequently, consumers highly involved with a product find advertising messages for this product more personally relevant (Greenwald & Leavitt, 1984). They have a greater motivation to attend to and a heightened level of involvement with the advertising. In turn, high advertising involvement will generate higher attention to the message and more cognitive elaboration of the message (Gardner, 1985).

However, the levels of involvement with a particular product may vary for different consumers (Bloch, 1981; Laurent & Kapferer, 1985; Longfellow & Celuch, 1993; Zaichkowsky, 1985). The difference in the involvement levels could be found from different consumers for the same product category or from the same consumer across

different product categories. In a high involvement condition, advertising message effectiveness is enhanced by central cues such as argument quality, relevance to the product, and relevance to the consumer's beliefs. In a low involvement condition where consumers are less motivated or less able to exert much processing effort, use of peripheral cues such as celebrity endorsement, music, and advertising execution styles are believed to be more effective.

Consequently, it is expected that the consumers will pay more attention to the ad messages and exert more efforts for comprehension when the product falls in a high involvement product category. De Pelsmacker, Geuens, and Anckaert (2002) reported positive relationships between the level of involvement and recall, which is consistent with the findings from other relevant studies (e.g., Cannon, 1982; MacInnis & Park, 1991; Perry et al., 1997). Therefore, ITV audiences will attend to information about high involvement products more than that about low involvement products. Likewise, it is expected that they will be more likely to notice the iPPL of high involvement products than those of low involvement products. Therefore, it is hypothesized:

- H1. Consumers' level of product involvement will be positively related to the interaction with the iPPL.
- H2. Consumers' level of product involvement will be positively related to the recall of the advertised brand in the iPPL.

3.3. Involvement with Programs

It was noted earlier that, for certain types of programs, interactive features of ITV may actually disturb the audience's television watching experience because they would

demand unwanted interactions. For some program types, audiences will not want to be interrupted, and they would not welcome anything that would distract them (Lee & Lee, 1995). Therefore, it may be anticipated that, for certain types of programs, iPPL will generate fewer interactions since such actions will require a shift of focus from the program. This dissertation uses the audience's level of involvement with the program to explain the effects of iPPL that might possibly vary across different program types.

The principles of the involvement construct would be applied to program involvement as well. Like product involvement, audiences' involvement with the program might also be considered as enduring. When considering the program as a product, the audience's level of involvement with the program may influence the audience's behavior regarding program (= product) consumption. But program involvement may show different patterns of interaction effects on various consumer response outcomes, and may produce entirely different results in advertising effectiveness.

Studies on the impact of program involvement on advertising effectiveness have produced opposite results. Some studies have found positive effects of program involvement on recall and attitudes (e.g., Singh & Churchill, 1987; Srull, 1983). On the other hand, other studies reported that high involvement generated negative effects on recall of commercials (e.g., Pavelchak, Antil, & Munch, 1988; Soldow & Principe, 1981) and attitude toward the ad (e.g., Soldow & Principe, 1981). Singh and Churchill (1987) focused on the concept of *arousal* in explaining a positive effect of program involvement. Similarly, Srull (1983) argued that arousal generated more vigilant and acute processing of information which in turn leads to an increase in memory.

Studies in the opposing position advocate negative effects of involvement on recall and attitude toward the ad. Their basic assumption is that television audiences use their cognitive capacity (i.e., attention and comprehension) in order to process the program and the capacity is limited. In addition, the limited capacity for cognitive processing also reduces the chance to form counterarguments (Petty & Cacioppo, 1986). This position is consistent with the aforementioned involvement principles that highly involved audiences would go through more intensive information processes (to process the program), which would result in lower elaboration on the commercials, and thus lower recalls and unfavorable attitudes. MacInnis, Moorman, and Jaworski (1991) explained that even though audiences watching a highly involving program would have greater *resources* for attention in the beginning of a commercial, their opportunity (and ability) to *process* the ad would be less, as the resources would be focused on the program. Other studies have also found that high involvement programs led to less ad processing (Gunter, Furnham, & Beeson, 1997; Lord, Lee, & Sauer, 1994; Norris & Colman, 1992). Tavassoli et al. (1995) suggested the inverted U-shaped relationship in an attempt to reconcile the differences of two positions. They found that ad memory and attitude reached the peak when the consumers had moderate level of involvement with the program. However, they found that the peak of the inverted-U curve at lower level of program involvement, and it may be interpreted as an instance of the negative relationship for the most part of the involvement level.

This dissertation uses the level of product involvement to reconcile the differences in the opposite positions. Lord and Burnkrant (1993) explained that program involvement must be viewed in the context of the ad's inherent attention-engaging capacity and the

audience's involvement in the message. Involvement with the advertising message is related to involvement with the advertised product. Product involvement might have been less important in previous studies on program involvement and recall, particularly because the program and the ads were presented separately on television. Therefore, the issue of divided capacity for information processes would have been less obvious in the context of separated presentation of the program and the commercials. Unlike ordinary TV commercials, the iPPL competes directly with the program for the audience's information processing capacity. Because they would require audiences' simultaneous processing of advertising and program information, the problem stemming from consumers' limited cognitive resources might be maximized. Consequently, it is expected that audiences highly involved with the program would have less capacity to process the embedded iPPL, and that both interaction and brand recall would be negatively influenced. Therefore, it is hypothesized:

- H3. Consumers' level of program involvement will be negatively related to the overall amount of interactions with the iPPLs.
- H4. Consumers' level of program involvement will be negatively related to recall of the advertised brand in the iPPL.

As described earlier, the level of involvement is not expected to influence the attitude valence. The interaction effect of program involvement and product involvement on recall and interaction will be investigated as well (Study 1). As previously noted, both the product involvement and program involvement are considered as enduring involvement. They are both relevant to the consumer's (or audience's) personal goals and

values. But they are anticipated to yield opposite results on consumers' recall and interactions. This dissertation proposes that the strength of the involvement will determine the ultimate impacts on recall and interaction. Therefore, when the product involvement is stronger and perceived as more relevant to the consumer, they will pay attention to the product information in the iPPL even though the level of program involvement is also high. On the contrary, they will ignore the information of the highly involved product when they feel the program to be more relevant (or more important) than the product.

3.4. Attitude toward the Program and Characters

3.4.1. Attitude toward the program

Media context has been considered as an important factor that may influence a person's attention to and elaboration of advertising stimuli (De Pelsmacker et al., 2002) and advertising effectiveness (Derks & Arora, 1993; Perry et al., 1997). In reconciling conflicting theories and hypotheses regarding the effect of the appreciation on advertising effectiveness (e.g., cognitive capacity theory and affect transfer hypothesis), Norris and Colman (1992) explained the differences using media characteristics, and De Pelsmacker et al. (2002) employed involvement as a moderating factor. Particularly, Norris and Colman (1992) recognized that, unlike the ads in print media, TV commercials could not be skipped easily. Therefore, the appreciation of the print medium context led to less ad processing, which resulted in reduced advertising effectiveness. On the contrary, television commercials have been thought to benefit from the carry-over effect of context appreciation. De Pelsmacker et al. (2002) also reported similar results with television

commercials that appreciation was positively related with recall and likeability of commercials. Considering the “skippable” and “inseparable” nature of the iPPL (i.e., the iPPL has to compete directly with the program content for the audience’s attention), it is suggested that the attitude toward the program would demonstrate similar effects as program involvement. Therefore, it is expected that the iPPL will receive less attention when the audience has a positive attitude toward the program content. However, the attitude toward the brand featured in the iPPL is expected to enjoy the carry-over effect, because the audiences would be exposed to the brand information only when they chose to view the information (i.e., voluntary exposure), and thus they will not be bothered by the advertising information. Therefore, it is hypothesized:

- H5. The attitude toward the program will be negatively related to recall of the advertised brand in the iPPL.
- H6. The attitude toward the program will be negatively related to interaction with the iPPL.
- H7. The attitude toward the program will be positively related to attitude toward the advertised brand in the iPPL.

Audiences’ attitude toward the program will also be examined in relation to product involvement (Study 2) and program involvement (Study 3). Positive attitude toward the program is expected to lead to similar effects as high program involvement on brand recall and interaction with the ad because both represent the condition where audiences’ cognitive resources are occupied. As a result, audiences’ interactions with the iPPL and brand recall are expected to reach a peak when the attitude toward the program

is less positive and the level of product involvement is high. On the other hand, both recall and interaction are expected to reach the lowest level when the program generates a positive attitude and product involvement is low. However, consumers' attitude toward the brand (A_B) featured in the iPPL may show a different pattern, because the attitude toward the program (A_{PROG}) can exert positive effects on A_B while the product involvement would not influence A_B . In short, A_{PROG} may be regarded as a peripheral cue, and the impact of A_{PROG} will be greatest for low involvement products. This means that low involvement products placed in positive A_{PROG} programs would show most favorable A_B , while this condition is expected to generate lowest level of brand recall and interaction with the iPPL.

When A_{PROG} is combined with *program* involvement instead of product involvement, the consumer's response outcomes are expected to show still another different pattern. In this situation, high involvement with the program is expected to yield a synergy effect on A_B when combined with a positive A_{PROG} . Likewise, negative A_{PROG} will have the worst effect on A_B when the audience is highly involved with the program.

3.4.2. Attitude toward the characters in the program

Traditional communication theories such as balance theory (Heider, 1946) and the congruity hypothesis (Osgood & Tannebaum, 1955) may suggest other interesting relationships. Heider (1946) explained changes in attitude by people's tendency to maintain a balanced state in the relationship between themselves, the communicator, and the message. For example, when a consumer has a positive attitude toward a character in a program (A_{CHAR}) and when the character shows positive attitude toward a brand, the consumer's attitude toward the brand (A_B) is likely to be changed or reinforced in a

positive direction. Given the attachment audiences may have with the program and its characters, and that the iPPL is likely to be implemented only for the products that are positively associated with the character(s), it is suggested that consumers' A_B , interaction with the iPPL, and brand recall may be favorably influenced.

- H8. The attitude toward the character will be positively related to the interaction with the paired iPPL.
- H9. The attitude toward the character will be positively related to the recall of the brand advertised in the iPPL.
- H10. The attitude toward the character will be positively related to the A_B in the iPPL.

The attitude toward the character is expected to demonstrate stronger impact on A_B than A_{PROG} because the relevance to the product would be greater for the character than for the program. For the audience, A_{CHAR} is centered on the actor or the actress while A_{PROG} is centered on the program itself. When the audience has positive (or negative) attitudes toward both the program and the character, the recall and interaction are expected to be the highest (or the lowest). However, when positive (or negative) A_{CHAR} is combined with negative (or positive) A_{PROG} , the strength of the attitude is expected to play an important role in the interaction effect on A_B . That is, when the directions of A_{CHAR} and A_{PROG} are opposite, the A_B will be affected by the stronger of the two other attitudes (Study 4).

The attitude toward the character will be explored in relation with product involvement as well (Study 5). As with A_{PROG} , A_{CHAR} is expected to work as a peripheral

cue in low involvement situations, and thus generate more positive (or negative) A_B for low involvement products according to the direction of A_{CHAR} . On the other hand, although A_{PROG} is expected to inhibit audiences' attention to the iPPL for both high- and low involvement products, A_{CHAR} is expected to *encourage* attention for both high and low involvement products. This is because A_{CHAR} will exert its influence by individual pairings with particular characters, and thus the more positive A_{CHAR} will produce higher attention to the paired products.

3.5. Gender

Different TV watching behaviors across the genders also suggest an interesting topic. Many studies on people's remote control use have examined (1) who uses it more frequently, and (2) who has the control over the device (e.g., Copeland & Schweitzer, 1993; Greene, 1988; Krugman, Cameron, & White-McKearney, 1995; Perse & Ferguson, 1993). Particularly, research suggested that men engaged in "zapping (i.e., changing channels during programs and/or at commercial breaks)" more frequent than women (Cornwell et al. 1993; Frisby, 2001; Greene, 1988; Heeter, 1988; Perse & Ferguson, 1993). It might be interpreted that since men dominate the remote control (Copeland & Schweitzer, 1993), women would have little chance to use the device. But other studies showed that compared to women, men change channels more frequently between shows, during shows, and during commercial breaks (Heeter & Greenberg, 1985; Perse & Ferguson, 1993).

In addition to many studies on zapping that discuss the audience's ad-avoidance behaviors, Heeter (1988) implied that male audiences had less concentration on the

program(s). Particularly, males were (1) more likely to watch more than one program at the same time, (2) more likely to change channels just to see what else is on, (3) less likely to watch a program from beginning to end, and (4) less likely to watch the same program every week (Heeter, 1988). Similarly, Cornwell et al. (1993) also found that males were more likely to change channels immediately after turning on the television set. On the other hand, it was reported that women are more willing to watch a program from beginning to end (Heeter & Greenberg, 1988), and that women tend to know better what they want to watch and what they will watch before turning on the television set (Heeter, 1988).

Therefore, it seems reasonable to expect that males would less actively engage in the program content, but they would more actively interact with the iPPLs. Therefore, it is hypothesized that:

H11. Male audiences will demonstrate greater amount of overall interactions with the iPPLs than female consumers.

It is possible that certain program types or contents will be more favored by a particular gender (e.g., actions and sports favored by males). However, this dissertation will conduct a pretest to select a program that is not gender-biased in terms of A_{PROG} .

Chapter 4. Interactivity and Interaction

Although the construct “interactivity” has not always been clearly labeled as such, the idea existed in the form of feedback processes in traditional communication studies. The construct had been studied for some time (Weitz, 1978; Wright, 1973), but it was after the advent of many new media when interactivity became a widely popular topic for researchers. Those new media considered to have facilitated interactivity included teletext, video games, the Internet, and so on. In particular, the emergence of the Internet and the World Wide Web (“Web”) and the development of relevant technologies in the late 1990s have brought a variety of interactivity studies as the Internet has been understood to possess the capacity to feature full interactivity along with the multimedia content.

When we focus on the interactivity concept from the perspectives of the (media) features, it can be argued that rapid deployment of new technologies has been increasing the level of interactivity within a medium. Furthermore, it might be argued that an element or a feature that was once regarded as very interactive may lose its innovativeness although they might be still interactive by definition. For example, use of multimedia and hypertextuality was considered interactive when the Web was first introduced (Newhagen & Rafaeli, 1996). But such elements are now very common in today’s online environment, and the audiences are familiar with even more “controllable” multimedia objects on the web such as volume controls or interactive flash animations. Therefore, adhering to certain interactive features in examining the effects of interactivity might be risky considering this rapidly changing environment, and it is suggested to focus on the heart of the (interactivity) construct that might be applied to different media

in different times. Chen (1984, p.284) stated that “looking beyond the technology of each new medium to its underlying content...will enable theoretical progress that does not stop at the borders of each new medium.”

Some studies have pointed out that the interactivity features might be perceived differently to audiences, and examined the impact of the individual's perceived interactivity (e.g., McMillan, 2000b; Newhagen, 1998; Wu, 1999). However, many studies still focus on the feature and try to examine its impacts on audience responses (e.g., Massey & Levy, 1999; Rice, 1984; Rogers, 1986).

Despite the different focuses on interactivity, most studies assume audiences' actual interactions as a given, and do not investigate the true nature of interaction. Based on previous studies on interactivity, this dissertation will examine the nature and the impacts of *interaction*. The following sections of this dissertation (1) revisit the various definitions, antecedents, and effects of interactivity described in previous studies, (2) present interaction as a distinct concept that might supplement interactivity in explaining various audience responses to the stimulus medium, and (3) propose some effects of interactions. Based on the previous definitions of interactivity and its dimensions of synchronicity, vividness, and social presence, Fortin (1997) classified various communication media along a continuum of their potential for interactivity. He described conventional television to be the least interactive among other media such as print, telephone, Internet, and conventional mail. However, ITV should be evaluated differently because of its various interactive features.

4.1. Interactivity – The Construct

Many studies from a variety of disciplines have defined and explained interactivity from different angles (Aldersey-Williams, 1996; Ha & James, 1998; Heeter, 1989, 2000; Hoffman, Novak, & Chatterjee, 1995; Neuman, 1991; Newhagen, Cordes, & Levy, 1995; Pavlik, 1996; Rafaeli, 1988; Rafaeli & Sudweeks, 1997; Rogers, 1986; Steuer, 1992; William, Rice, & Roger, 1988). However, some suggest that the construct still needs clearer conceptualization (Brody, 1990; Heeter, 1989; Morris & Ogan, 1996; Pavlik, 1996; Rafaeli, 1988).

Interactivity is generally regarded as a characteristic of a communication system (Williams et al., 1988) or of a communication process (Chen, 1984; Rafaeli, 1988) or a combination of both (Heeter, 1986, 1989). Most definitions of interactivity are divided into two groups – feature-centered definitions and perception-centered definitions. In the beginning, researchers focused on the interactive features of a medium and presented feature-oriented definitions (e.g., Heeter, 1989; Rice, 1984), but later studies started to notice the effect of individuals' perceptions of interactivity, and described the construct from the individual's angle (e.g., McMillan, 2000b; Newhagen, 1998; Wu, 1999). This distinction between feature- and perception-oriented perspectives is important not only because they may have different effects but also because we need to keep in mind the fact that interactivity may vary within the same medium for different programs and within the same program for different users. For example, the Web is regarded as a highly interactive medium but some sites do not offer as much interactivity as others. Television is regarded as less interactive, but some audiences participate in interaction with programs that offer such chances as call-in discussions, ARS (Audience Response

System) quiz shows, and so on. Similarly, Rafaeli (1990) noted that traditional mass media audiences are becoming more active in participation using letters to the editor and on-the-air talk shows.

In short, feature-oriented descriptions cannot explain the individual audience's different perception of the same medium. Following this approach, televisions are always less interactive than e-mails. Perception-oriented interactivity definitions would help describe the differences in individual audiences, but it would not be very helpful in categorizing the different media based on interactivity, and thus it would be less useful to examine the (interactivity) potential of the each medium. Despite these shortcomings, both perspectives provide some valuable insights in understanding the interactivity construct and in establishing the *interaction* construct.

Feature-oriented perspectives have defined interactivity as the capability of new communication systems to *talk back* to the user (Rogers, 1986), and the extent to which communication reflects back on itself, feeds on, and responds to the past (Newhagen & Rafaeli, 1996), within the context of an ongoing communication exchange (Rafaeli, 1988). Therefore, interactivity refers to the extent that the later transmission of the message is related to the earlier transmissions (or exchanges) of messages. In other words, communication roles between sender and receiver must be interchangeable in order for full interactivity to occur (e.g., Williams et al., 1988). Also, synchronicity of exchanges is another characteristic of interactivity, but there is a general consensus that synchronicity alone does not make a necessary nor a sufficient condition for interactivity to occur (Fortin, 1997; Heeter, 2000). Heeter (1989) employed the concept of control from the feature's perspectives, and pointed out that users with interactivity would have more

control over the information to which they wish to be exposed. Similarly, Neuman (1991) defined interactivity as a quality of electronically mediated communications characterized by increased control over the communications process by both the sender and receiver.

In particular, Heeter (1989) regarded interactivity as a multi-dimensional concept based in the functions of the medium, and suggested that it is characteristic of the medium's processes or feature. Using Heeter's (1989) definition, Massey and Levy (1999) examined the level of interactivity in a Web site based on the presence of interactive features (e.g., e-mail links, chat rooms). McMillan (1998) and Ha and James (1998) also used Heeter's (1989) definition, and identified additional interactive features of a Web site such as search engines, hit counters, games, registration forms, surveys, toll-free numbers, and so on. Newhagen and Rafaeli (1996) defined it as the extent to which communication reflects back on itself, feeds on, and responds to the past. Alba et al. (1997) defined it as a multi-dimensional construct, the key aspects of which include reciprocity in the exchange of information, availability of information on demand, response contingency, customization of content, and real-time feedback.

Despite slight differences in feature-oriented interactivity definitions, they emphasize exchange and mutuality. These shared concepts are well expressed in Rice's (1984) description of the role of new media and interactivity. He noted that new media "facilitate interactivity among users or between users and information" (Rice, 1984, p.35)

On the other hand, Williams, Stover, and Grant (1994) emphasized the importance of understanding individuals' uses of new media in the theory-building process.

Newhagen, Cordes, and Levy (1995) highlighted the psychological dimension of

interactivity, which centered around the “sense” that communication participants have of their own *and* of the receivers’ interactivity.

Some studies have explained interactivity using the concept of audience’s control (Ku, 1992; Rafaeli, 1988; Steuer, 1992; Spalter, 1996; Williams et al., 1988). Steuer (1992) emphasized the individual’s experiential aspect of interactivity, and defined interactivity as the extent to which users can participate in modifying the form and content. Spalter (1996) described interactivity as enabling users to control and choose the content. Newhagen (1998) argued that although the medium’s features may be important to facilitate interactivity, the way that individuals use a medium would explain the interactive process better. In short, the perception-oriented approach recognizes and emphasizes the possible differences in the level of interactivity perceived by different audiences for the same medium.

Therefore, Wu (1999) focused on the perceived interactivity of web sites, and found that it was significantly related with people’s attitude toward the web site (A_{ST}). McMillan (2000b) also documented that interactivity resided largely in the user’s perception. She employed both feature- and perception-oriented interactivity and examined whether the features would influence user perception of interactivity but found a very weak relationship. But she found that both interactivity features and perceived interactivity had a positive influence on users’ attitude toward a web site (McMillan 2000b), yet the perception was a stronger indicator than the features (McMillan 2000a, 2000b).

4.2. Interactivity – Other Effects and Antecedents

Studies that manipulated level of interactivity indicated a weak effect on learning (e.g., Bailey, 1992; Frazer & McMillan, 1996; Kettanurak, 1996; Ku, 1992; Shaw, Arnason, & Belardo, 1993) or knowledge gain (Jaffe, 1996). However, Hoffman et al. (1995) argued that interactivity would let users actively engage in the communication process, and would help build the consumer-marketer relationship. Cho and Leckenby (1999) used the feature-oriented interactivity concept, and showed that higher interactivity was associated with favorable attitudes toward the banner ad and the advertised brand, and with the intention to purchase the brand. McMillan (2000b) explored the role of interactivity in explaining consumers' behavioral responses (i.e., send e-mail to the Web site, tell others about the site, etc.), and found that only perception-oriented interactivity had a significant impact on the users telling other people about the Web site (McMillan, 2000b).

Focusing on the *control* aspect of interactivity has yielded interesting results and implications. As mentioned earlier, many studies examined interactivity in terms of more user control (e.g., Ku, 1992; Heeter, 1989; Rafaeli, 1988; Steuer, 1992; Spalter, 1996). Considering that the individual's feeling of being in control was found to increase self-efficacy beliefs (Bandura, 1977; Gist & Mitchell, 1992; Phillips & Gully, 1997; Tafarodi, Milne, & Smith, 1999), more controllability enabled by interactivity in a media environment would produce higher self-efficacy beliefs in a user. Increases in self-efficacy level have been reported to result in better performance over a task (Bandura, 1982; Bandura & Adams, 1977; DiClemente, 1981; Lee & Edwards, 2002; Nahl, 1996). And consistent with the previous findings on the interactivity – A_{ST} relationship (e.g.,

McMillan 2000b; Wu 1999), increases in self-efficacy level were also found to generate more favorable A_{ST} (Lee & Edwards, 2002). Therefore, it might be understood that higher level of the user control from higher interactivity leads to increased self-efficacy and favorable attitude toward the web site.

The approach that focuses on the *control* aspect of interactivity, as well as on the aspect of a two-way communication, also suggests a relationship between interactivity and involvement. That is, by practicing an active control in a two-way communication process, users experience higher interactivity, and they may feel higher involvement with the object of interaction (i.e., person, medium, content, message). Participating in a two-way communication process means that the audience would be sending and receiving messages instead of passively receiving them. These exchanges of messages and facing chances to make decisions (or choices) would require greater attention of the participants, which would heighten the level of their cognitive involvement occurring in the communication process.

However, it should be noted that simply *having* a chance to interact and actually *participating* in the interactive communication process are different. Furthermore, it might be questionable whether only “having a chance” would increase the involvement level, especially when considering the possible differences between those who participated in the process by actively interacting and those who ignored the options and did not interact at all.

In short, it is reasonable to anticipate that audiences who participated should experience higher involvement level than those who did not. But when considering the common descriptions of interactivity features and perception, it is noticed that neither can

actually explain this difference. The feature-oriented definitions will describe the situation (or the medium) as “interactive” because the users had chances (or options) to interact. The perception-oriented approach might describe that everyone in the situation perceived a similar level of interactivity, failing to distinguish those who interacted from those who did not. The only difference can be found from the people’s actual actions, and this issue will be discussed in the following sections in greater detail.

4.3. Interactivity and Interaction

Regardless of different definitions and conceptualizations of interactivity – whether it is feature-oriented or perception-oriented, the interactivity construct centers on the basic notion of human actions, reactions, or interactions. Therefore, examining interactivity without taking an individual’s interaction into account would far less useful. Individual differences in the perception of interactivity are important, which is why many studies have examined the role of perceived interactivity as differentiated from interactivity features. But the individual differences in the level of engagement in actual interactions are also important. For instance, comparing audiences who interacted with the stimuli in a medium and participated in the communication process with those who did not could yield considerable differences in terms of their response outcomes such as degree of attention, comprehension, and resulting level of involvement. The reasons for the importance of interactions include: (1) a medium presents different interaction conditions where the different amounts of interactivity might be selected by its audiences (e.g., *Laura and George both wanted call the radio station to participate in a quiz, but only Laura could call because George had to go to the bathroom.*), (2) the amount of

perceived interactivity might vary for different audiences with the same medium (e.g., *George only knows how to send and receive e-mails, while Laura is running an online virtual community.*), (3) different audiences may have different levels of tendency to interact with the medium (e.g., *George would never buy anything from the Home Shopping Channel, but Laura would buy anything that seems reasonably priced.*).

In a similar vein, Heeter (1989) also noted that different media systems require different levels of user activity. She pointed out that although users are always active with media to some extent, some users are more active than others and some media are more interactive than others. For example, e-mails are regarded as both highly interactive and non-interactive depending on a user. Conventional television and radio are regarded as non-interactive mass media, but some audiences enjoy interactivity by participating in live discussions. Of course, this does not deny that there are differences in the level of interactivity across different media.

However, few studies have tried to distinguish interaction from interactivity, or examined the role of interaction in consumer information processing. Before proceeding with the interaction conceptualization, let us briefly review another classification of interactivity – *person interactivity* and *machine interactivity*. Steuer (1992, p.84) explained machine interactivity as “the extent to which users can participate in modifying the form and content of a mediated environment.” He also emphasized the role of media (in a model of mediated communication) as a facilitator of person-to-person interaction by noting that media serve as a “conduit” in which message senders and receivers could interact. Hoffman and Novak (1996) viewed interactivity in terms of “feedback,” and explained that a computer-mediated environment enables users to *communicate through*

the medium (i.e., person interactivity) and to provide or interactively *access* media content (i.e., machine interactivity). Hoffman and Novak (1996) state that interactivity could be *through* the medium (emphasizing the human communication process mediated by machine – person interactivity) or *with* the medium (and users interact with the content – machine interactivity). Media features are central in machine interactivity since they would directly enable the interactivity. The machine would play the role of a communicator. On the other hand, the features would be less important in person interactivity, where they would only facilitate human interactions. The machine performs only as a mediator. Excluding the unmediated interpersonal communication (that is not the focus of this study), it can be said that the machine (or the medium) always plays a certain role – a communicator or a mediator.

It can be noted that the above descriptions on person and machine interactivity are not just about the medium's interactive features or user perceptions. Although it was not clearly stated, the descriptions focus on the aspect of actual interactions occurring among users and between users and media. At this point, it would be worth pointing out the difference between interaction and interactivity: interactivity features and perception characterize the machine (i.e., medium)'s elements and human's feeling, respectively. But interaction refers to a behavior-oriented *communication process* whether it is between people or between people and media. In order to examine the role of interaction and discuss the degree of a medium's interactivity based on the medium's potential (not features) to generate interaction, a clearer conceptualization of interaction would have to be presented.

Heeter (2000) conceptualized interactivity while taking interaction into account as well, and it provided a valuable starting point for the interaction conceptualization. Primarily, she suggested that the concept of “interaction” would encompass a wide range of internal responses of the audience to include thinking, feeling, attention, interpretation, intention, and so on. In the beginning, she included every human action with an object in the interaction boundary, and as a result, Web users’ simple mouse movement, data inquiry, along with their cognitive/affective responses were interpreted as interactions (Heeter, 2000).

Then, Heeter (2000) limited the interactions to the actions physically observable to separate the concept from such internal processes as perception, motivation, emotions, and so on. She noted that those internal dimensions of interaction were “not subject to direct observation,” drew a line between interaction and other (internal) responses, and defined interaction as “an episode or series of episodes of physical actions and reactions of an embodied human with the world, including the environment and objects and beings in the world (Heeter, 2000).”

However, this dissertation proposes to further refine Heeter’s (2000) interaction definition. According to her definition, television audiences’ flipping channels can be understood as an interaction. Also, a magazine reader’s particular reading habit can be interpreted as an interaction since it is observable. But these types of interactions have a limited capacity to explain the medium’s interactivity (or interaction-generating potential), although they are related to personal characteristics and tendency (to interact). Therefore, it would be helpful to find a way to systematically differentiate these types of interactions from other types as calling or writing back to the message sender. Simply speaking,

channel flipping actions and particular reading habits can be said to reflect how an audience consumes, processes, and *reacts* to the stimuli provided by the medium. These activities might not be sufficient to be labeled as an interaction – rather, they are closer to “reactions.” Thus, the attempt of the current study to refine Heeter’s (2000) interaction concept starts from distinguishing interaction from reaction.

The Merriam-Webster dictionary describes interaction as a “*mutual or reciprocal* action or influence” or “to act *upon one another*.” Reaction is defined as “the act or process or an instance of reacting (which is “to *respond to a stimulus*”); a response to some treatment, situation, or stimulus, and; *bodily response* to or activity aroused by a stimulus.” Interestingly, the heart of Heeter’s (2000) interaction conceptualization – the observable nature – is found under the description of reaction. And it should be noted that the interaction definition describes mutuality. A similar clue for the differentiation (of interaction from reaction) can be sought from many interactivity definitions, which emphasize the aspect of *two-way communication*. Rafaeli’s (1988) definition of interactivity is based on the “responsiveness” of a counterpart in the communication process. He noted that for a communication to be fully interactive, the sender-receiver roles must be interchangeable.

From this, the current study proposes a refined conceptualization of interaction using the concept of interchangeability, and it is stated as “observable physical actions an audience performs in response to messages (content) provided through a medium which alter the content being provided and/or which communicate with the sender (publisher), either synchronously or asynchronously.”

The mutuality in the context of communication exchange was established with the new conceptualization, but there is still one more issue that calls for a further investigation. As mentioned earlier, certain interactions (e.g., channel flipping) are different from other interactions (e.g., writing back to a magazine), and the new definition by itself falls short in fully explaining the difference as it includes both the publisher and the medium for the communication counterpart to which the feedback can be sent. The answer may be found from the aforementioned rationales of person interactivity and machine interactivity. Talking back to a publisher or sending information in a Web site may be understood as a function of person interactivity as the audience's interaction would reach the original message sender. The communication counterpart for this kind of interactions would be a person or an organization. This type of interaction embodies higher interchangeability, and can be labeled as the "human interaction (with person or organization)." On the contrary, the interactions like channel flipping, reading habits, recording a program, or increasing the volume represent the interactions that hardly ever reach the sender, and they can be understood as a function of machine interactivity. Usually, it involves no human communication counterpart, and the world is oblivious to this interaction. This type of interaction illustrates interaction with the medium or content and can be labeled as the "content interaction." Both types of interactions share the core of the interaction definition, roles interchangeability, that is provided in this study. The only difference between these types of interactions is in the communication counterpart – (medium-mediated) person versus the medium itself.

4.4. Value of Interaction

Stewart and Ward (1994) recommended that advertising studies should change the focus from analyzing media stimuli (and their impact) to exploring the way audiences interact with the media. The new definition presented in this study will provide a means to more closely associate the concept of interaction with that of interactivity, and will allow us to use interaction concept as a means to examine media interactivity and the advertising effectiveness. For example, an advertisement's simple exposure to the consumers has been believed as one of the key objectives for advertisers. It has also been echoed by current industry practices that employ popup ads and by current online advertising pricing policies that are based on reaches and frequencies. However, it should be noted that more fundamental goals of advertisers are to take the audiences to the advertiser's web site, or to generate sales from the ad efforts. In other words, it can be argued that the more important goal is to generate consumers' *interactions* with the ads.

Interaction represents the *audience's* goal of the as well. That is, an individual audience member's (series of) interactions in media use may be interpreted as (re)actions to achieve his or her goal of the media usage. The interactivity of a medium must be designed in a way that can help audiences achieve their goal, and the content providers and designers of a medium should first consider the reasons for audiences' medium usage. As Heeter (2000) describes, "designers try to make obvious to the human what actions are possible at any time, and what affordances are available within an application." Of course, the designers should also try to produce favorable responses from the audiences even though the responses might be unobservable(e.g., positive A_{ST}). It should be noted that interactions might be the results of those unobservable reactions. For instance,

continuing interactions might be a results of the positive A_{ST} , whereas exiting the web site might be a sign of the negative A_{ST} .

Audiences view affordances based on their own goals, and every audience member has a goal. Although a person may appear to be browsing a Web site without any specific purpose, the person's behaviors and the goal can be understood as killing time (which may be achieved by entertaining contents). A person's goals may be classified into cognitive-driven / affect-driven goals, or information-oriented / entertainment-oriented goals. However, no interaction would be aimless. Cooper (1999) advocated this view and emphasized the design focusing on individual goals.

Earlier in this chapter, interaction was defined as having physical observability and interchangeability of the sender-receiver roles. For a concept to be used in comparison with other constructs, it should be measurable. The unit of analysis for interaction may have different forms for different media. For television and radio audiences, writing a letter to the station can be an example of interaction. For Web site visitors, clicking toward or away from certain web elements could be regarded as an interaction. Despite the differences, the behavioral patterns and accompanied goals would be similar across different media. One possible way to categorize these patterns would be position them in a avoidance–acceptance dimension. Interactions of complete avoidance would include closing a web browser window, clicking *away* from a web site, ignoring an e-mail, changing a channel, and turning off the equipment. The complete acceptance would include clicking *into* the web pages, saving the content for later, bookmarking, and increasing volume of the television set. Similarly, interactions could be classified based on the time of media consumption – live consumption of content (e.g., click/volume

increase), delayed consumption (e.g., save/record), and avoided consumption (e.g., closing a browser window).

Because the web is computer-based and generally considered to be more interactive than other mass media, the interactions in the online environment have a unique characteristic – ease of measurement. The interactions on the Internet can be represented by the clicks. Chatterjee, Hoffman, and Novak (1998) used visit duration and the number of pages visited as possible measure of consumer interaction with Web sites and banner ads. But, the visit duration in Web sites may be problematic when used alone. Audiences' time spent in viewing Web sites encompasses the number of pages viewed. Besides, this measure can easily suffer from confounding variables such as the speed of connection, individual differences in comprehension rate, and the particular situation in which the person is browsing the web sites (e.g., concentrating on the content vs. doing something else at the same time). Although visit duration might be suitable for some experimental studies conducted in a computer lab, it would not be an appropriate measure of interaction for most of the cases. Instead, the number of web pages visited by an audience member, the number of clicks made to the hyperlinks (including ads), or the individual click made on a certain hyperlink may be recommended as safer measures of online interactions. The next section will discuss (1) what makes audiences interact and (2) what is caused by the interaction in the context of ITV.

4.5. Interaction – Antecedents

Examining the effect of interactivity perceptions in an interactivity process, McMillan (2000a) found that consumers' positive attitudes toward the Web site would

better predict their subsequent actions than their interactivity perceptions would.

Considering that McMillan (2000a) and Wu (1999) found that consumers' perceived interactivity affected their A_{ST} , it means that the impact of perceived interactivity on the actions is mediated by the A_{ST} . McMillan (2000b) also found that the direct influence of interactivity perception on consumers' future actions was only partial and mostly limited.

However, the conceptual difference between consumers' actions used in McMillan (2000a, 2000b) and the interaction has to be noted. McMillan's (2000a, 2000b) actions referred to those that were favorable reaction to the Web site (e.g., telling about the Web site and purchasing from the site), whereas the interaction in the current study is rather neutral in its nature. It was discussed earlier that interactions may represent audiences' avoiding or accepting tendency with the stimulus. The audience's actions could be predicted by attitude because both variables were measured based on their favorability – good vs. bad. Therefore, a direct application of McMillan's (2000a, 2000b) rationale might be problematic as it did not include the negative (inter)actions. Also, consumers do not have to be favorable to the Web site in order to interact. Although they might not like the Web site (e.g., online shop with a bad interface), they will still interact (e.g., purchase a product or browse for further information) when they find a reason to interact (e.g., cheap price). In short, the interaction will not occur only because someone likes the Web site. Rather, it will occur when someone sees a certain benefit in making the interaction. Other possible reasons that would make it difficult to use the attitude as an interaction precursor is the fact that interactions occur on very specific elements within Web sites (e.g., chat rooms, ads, contents in need, etc.). Each element can affect the overall level of the audience's A_{ST} based on the audience's purpose of the web browsing, but the overall

A_{ST} will not be able to clearly explain whether the audience would interact with a specific element. Although the role of attitude might be unimportant in explaining interaction, examining the effect of interactivity perception and features on interaction may suggest closer relationship because the interactivity construct originates from the basic principle of interaction. Specifically, it is anticipated that the audience's interactivity perception and interactivity features in media would increase the *chance* that the audience would interact. However, it is unlikely that the features and perception would cause the interaction behaviors.

If there is a well, people will come and drink. But it is difficult to say that the well itself is the reason for people's drinking. Its presence will increase the chance of drinking from that site, but few will drink water only because there is a well. In other words, the well does not represent the cause of the action. It is thirst that drives the action.

Interactivity features and perception only function as a well. They may increase the chance of interaction, but they are not the cause. Why do people interact? It is to fulfill their needs. Burnkrant and Sawyer (1983) recognized that the level of involvement is determined by people's need for information and the meaningfulness of the message content. Therefore, this study recommends that it would be safer to assume that the interactivity features and perception facilitate interaction and increase consumers' chance to interact, rather than representing the cause of interaction. Other factors that would possibly increase the chance to interact are consumers' cognitive intensity in processing information. For example, it is reasonable to expect that the more attention the consumer pays to the stimulus or the medium, the more likely the consumer is to show interactions.

As mentioned earlier, Novak, Hoffman, and Yung (2000) used the concept of flow and described that consumers' experience of flow under Web environment would make the consumers involved in their navigation activity. They further explained that it would let them more focus on the interaction, which they conceptualized as the "exploratory behavior." They found a significant influence of consumer experience of flow on their exploratory behavior in their initial model establishment (Novak et al., 2000). However, the measures and operationalization of interaction used in the studies examining flow and Web site interaction (Berthon & Davies, 1999; Cho, 1999; Novak et al., 2000) seem to be different from the interaction conceptualization in the current dissertation. They measured people's intention to click (Cho, 1999) and intention to revisit the Web (Berthon & Davies, 1999). Also, one might argue that the exploratory behavior used in Novak et al. (2000) may not correctly represent *interaction* as they measured users' general tendency in online navigation. None of them employed an action-based interaction measure. The intention-based measures even differ from their likeliness to click. The intention to click would partly explain the likeliness to interact, but it must be noted that intention-based measures were mostly used to measure the consumer's intention in a direction that is favorable to the advertiser/publisher. Considering the neutral nature of the proposed interaction concept, the intention measures would not provide a perfect fit either for the chance of interaction or interaction per se.

Finally, Cho and Leckenby (1998) attempted to explain consumers' banner-clicking activity by investigating its underlying motivation, and presented advertising values motivations (i.e., information/entertainment/usefulness), advertising characteristics motivations (i.e., attention-/curiosity-generating), and user characteristics

motivations (consumer needs/involvement/learning motivation). From the above discussion, it is reasonable to expect that the consumers' involvement with the product category would be a factor that would increase the likeliness of interaction. This is also consistent with the hypotheses described in H1 and H2.

4.6. Interaction – Consequences

When consumers are aware of the advertiser's Web site, interaction with Web sites was found to generate positive images for brands (Consumer Experience Probe, 1996, in Chatterjee et al., 1998). Similarly, Cho and Leckenby (1998) argued that consumers' interaction with messages or advertisers was likely to generate active and intensive information processing, which in turn would result in more favorable consumer attitudes and behaviors. They showed that consumers' intention to click was positively related to the attitude toward the banner ad and the advertised brand (Cho & Leckenby, 1998).

Generally, interactivity studies assume that a reciprocal and two-way communication is a commonly desired trait in media. Interactivity definitions also assume the audience desires interacting with others (e.g., people, media, etc.), emphasizing exchange and mutuality. However, these assumptions are not shared by everyone. For example, Ha and James (1998) criticized them to be unrealistic, and proposed that individual differences in communication needs should be considered. Also, while assessing the potential of interactive television, Lee and Lee (1995) pointed out that individuals' different needs in using a medium must be considered before providing interactivity and noted interacting with a medium might be considered disturbing for

certain content contents or audiences. Likewise, Neuman (1991) argued that audiences might prefer not having to interact although having a choice of interactivity would be beneficial. It might be true – interaction (or more specifically, *having to* interact) may be annoying. This may be related to the consumers' involvement with the program, which was accordingly hypothesized to have negative relationship with their interaction (H3). Interactions may intensify a person's information processing (Cho & Leckenby, 1998). Then, *how* will interaction operate to make the process more intense? This dissertation investigates the change in individual's level of involvement as a possible consequence of interaction. How can a person's interaction with an object make him or her more involved? Does anyone experience increased levels of attention, interest, and involvement with an object after making an interaction? It is possible. For example, when someone picks out for his/her favorite contestant during watching Fox's *American Idol*, and votes for the contestant using the provided 1-800 number, it would generally make the person pay more attention to the result and more involved with the program (e.g., more wanting that contestant to win the match) compared to those who did not make such an interaction. Similarly, voting on an issue in a Web site might generate similar effects. These can be also explained by the audience's investment of the time, money, or cognitive resources.

Involvement studies have recognized that the high involvement state produces higher level of attention, deeper information process, and more self-generated thoughts (Gardner et al., 1978; Greenwald & Leavitt, 1984; Leigh & Menon, 1987). Zaichkowsky's (1985) definition states "a person's perceived relevance of the object based on inherent needs, values, and interests (p.342)." An object refers to anything under

the person's consideration including a product class, an ad message, or purchase intention. When regarding interaction (i.e., physical action) as an object, the above definition will read that a person highly involved with the interaction will feel the interaction to be *more relevant* to his or her needs and values. Likewise a person will feel the interaction to be *less relevant* to their needs and values when the person has low involvement with the interaction. Considering that a person's most interactions would be generated from recognizing his/her own needs and that it is an effort to achieve own goal, most interactions can be described as the outcomes of at least medium level of involvement. In addition, these high involvement interactions would reflect high level of consumer attention and more intensive information process.

From this, one can speculate that consumer' high involvement interactions will occur more often when the interactions are with high involvement the product (in H1). In addition, when considering an interaction reflects an effort to fulfill ones need, the (continuing) interactions would not only *reflect* the involvement levels of an object, but it might also *reinforce* the level of involvement when the course of interaction is not significantly interrupted by other factors such as unsatisfactory results. It may be justified by the following two rationales. First, the (series of satisfactory) interactions will (1) produce self-generated thoughts because of the nature of interaction in two-way communication, (2) require more attention to the stimuli and the communication process as the individuals practice active control, and thus (3) consumers will elaborate on the messages provided and experience deeper levels of processing. Second, flow studies note that flow is characterized by a *sequence* of responses facilitated by machine interactivity (Novak et al., 2000) and describe that users will experience flow when they perceive a

balance between their skills and the challenges of the interaction (Novak et al., 2000).

Novak et al. (2000) explained that consumers experiencing flow during online navigation are “acutely involved in the act of online navigation (p.6).” As a result, it is expected that the online audience’s interactions will increase the level of product involvement. Also, because the interactions with the iPPL represent the interactions with the program itself, it is expected to increase the level of program involvement (Study 5). However, the increased involvement level of the program will be situational involvement because the interactions with the iPPL or the information gathered by the interactions are not intrinsic to the program or the program information. Therefore, it is hypothesized:

H12. Interaction with an iPPL will be positively related with the recall of the advertised band in the iPPL.

H13. Interaction with an iPPL will increase the consumer’s involvement with the product featured in the iPPL.

H14. Interaction with the iPPL will increase the consumer’s situational involvement with the program.

Chapter 5. Methodology

5.1. Analysis Plan

The six independent variables in this dissertation include the audience's product involvement, program involvement, attitude toward the program (A_{PROG}), attitude toward the character (A_{CHAR}), gender, and number of interactions. The five dependent variables are brand recall, interactions, attitude toward the advertised brand (A_{B}), (enduring) product involvement, and (situational) program involvement. The hypotheses are tested using regression analyses and t-tests, and these analyses are followed by the tests of interaction effects of the independent variables in five separate studies. Table 1 illustrates the list of hypotheses to be tested, the interaction effects to be examined, and the associated analytical techniques.

Each study will use a 2×2 factorial design. Specifically, Study 1 examined the impacts of product and program involvement. Study 2 and 3 examined the effects of attitude toward the program, combined with product and program involvement, respectively. Study 4 and 5 examined the effects of attitude toward a character, combined with attitude toward the program and product involvement, respectively. Finally, Study 6 will examine the effects of gender and attitude toward a character.

5.2. Design and Sample

Computer lab experiments were conducted for this study. For the experiment, a total of 396 undergraduate college students were recruited from courses at a large midwestern university in the U.S. The courses were campus-wide electives so that the

participants could represent a variety of majors. Participants were randomly assigned to one of two program involvement conditions (high vs. low), and each condition was arranged to contain similar number of male and female participants to avoid uncontrolled gender effects.

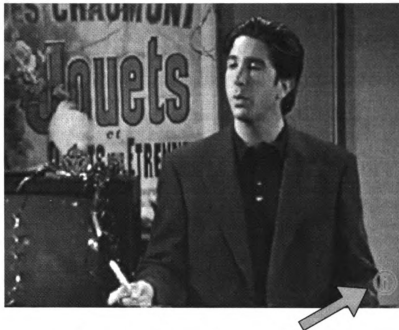
Table 1. Hypotheses

	Independent Variable	Dependent Variable	Method
H1	Product Involvement	Amount of Interactions	Regression
H2	Product Involvement	The Number of Recalled Brands	Regression
H3	Program Involvement	Amount of Interactions	Hotelling's T^2
H4	Program Involvement	The Number of Recalled Brands	Hotelling's T^2
H5	Attitude toward Program	The Number of Recalled Brands	Regression
H6	Attitude toward Program	Amount of Interactions	Regression
H7	Attitude toward Program	Attitude toward Brand	Regression
H8	Attitude toward Character	Amount of Interactions	Regression
H9	Attitude toward Character	The Number of Recalled Brands	Regression
H10	Attitude toward Character	Attitude toward Program	Regression
H11	Gender	Amount of Interactions	T-Test
H12	Amount of Interactions	The Number of Recalled Brands	Regression
H13	Amount of Interactions	Changes in Product Involvement	Regression
H14	Amount of Interactions	Changes in Program Involvement	Regression
S1	Product Involvement × Program Involvement	Amount of Interactions	Two-Way Mixed ANOVA
S2	Product Involvement × Attitude toward Program	Amount of Interactions Attitude toward Brand	Two-Way Mixed ANOVA
S3	Program Involvement × Attitude toward Program	Amount of Interactions Attitude toward Brand	Two-Way Between ANOVA
S4	Attitude toward Program × Attitude toward Characters	Amount of Interactions Attitude toward Brand	Two-Way Between ANOVA
S5	Product Involvement × Attitude toward Characters	Amount of Interactions Attitude toward Brand	Two-Way Mixed ANOVA

5.3. Development of the Stimulus Material

A 25-minute episode of a popular sitcom – *Friends* – was used for the experiment. Interactive television (ITV) interface was established on the computer screen to enable interactivity of the program. First, the program was digitized, and optimized to fit the resolution of the computer screen (800 by 600 pixels). Interactive Product Placements (iPPLs) used in this study and accompanying interactive features were produced and embedded using Macromedia Flash. The digital video recording (DVR, or personal video recording – PVR) feature that allows audiences to record and replay the program was not established due to technical limitations. However, pause and replay functions were included. To demonstrate iPPL functions, a small icon was placed in the bottom-right corner of the screen (Figure 2).

Figure 2. Thumbnail of Stimulus Material: Step 1



Under normal viewing conditions, a clickable icon is placed in the corner of the screen.

A click on the icon displayed multi-tiered product information. For example, a participant who was interested in the jacket worn by a character could click the icon to display a small transparent menu that contained the list of the available products within a particular scene (Figure 3).

Figure 3. Thumbnail of Stimulus Material: Step 2



When the icon is clicked, the list of available products (along with the pictures) in the scene is displayed.

When the participant found the item of interest was included in the list and clicked the item, further product information was displayed in a new window (Figure 4). A purchase button was included in the interface design. However, clicking the button would display a small dialogue box in which the viewer was told that the button is not fully functional in the experiment.

Figure 4. Thumbnail of Stimulus Material: Step 3



When a particular item is clicked, the detailed product information is displayed.

The products available for the iPPLs were changed as the scenes (e.g., living room, restaurant, etc.) changed. Table 2 shows the detailed information from the episode used for the experiment, including its scenes and embedded product information.

To select the products for the experiment, all items appearing in the program were listed. The final products for the experiment were selected using two criteria. First, products paired with a character were clearly being used or held by a single character. Second, brand information such as a brand name or a logo was not visually or verbally available in the program. This was to control possible effects of verbal or visual endorsement.

Table 2. Program used for the Main ExperimentEpisode #408: *Chandler in a Box*

Scene No.	Dur. ¹	Place	Character	Product	Brand	Price
1	0:56	Joey's Apt	Joey	Sweater	Gap	\$35.00
				Jeans	Arizona Jeans	\$43.00
				Phone	Panasonic	\$19.99
2	0:45	Title	No iPPLs			
3	4:03	Rachel's Apt	Rachel	Tableware	Target	\$4.50
				Sweater	J.Crew	\$58.00
				Skirt	Eddie Bauer	\$42.00
			Ross	Sweater	Polo Ralph Lauren	\$109.00
			Monica	Kitchenware	Crate & Barrel	\$15.00
			Chandler	Shirt	American Eagle	\$39.00
4	1:36	Rachel's Apt ²	Phoebe	Shirt	The Limited	\$60.00
			Ross	Beverage	Impulse	\$9.00 ³
				Pants	Tommy Bahama	\$55.00
			Chandler	Jeans	Calvin Klein	\$49.50
5	1:07	Joey's Apt	No iPPLs			
6	0:50	Café	Chandler	Coffee	Starbucks	\$1.00
7	0:50	Eye Doctor	No Products			
8	1:41	Joey's Apt	Background	Sofa	IKEA	\$649.00
				Recliner	La-Z-Boy	\$430.00
				Board	Office Max	\$29.99
				CD Rack	WalMart	\$19.95
9	1:15	Eye Doctor	No iPPLs			
10	6:44	Rachel's Apt	No iPPLs			
11	1:51	Balcony	No iPPLs			
12	3:00	Rachel's Apt	Background	Sofa	Art Van	\$350.00
			Background	Tableware	Pottery Barn	\$14.99
			Phoebe	Dress	DKNY	\$189.00
			Phoebe	Dessert	Sara Lee	\$3.50
13	0:30	Balcony	No iPPLs			

¹ Duration² Same place in different time frames³ Price is for a 6-pack

Next, the level of involvement for each product was considered. Existing literature on product involvement (e.g., Ratchford, 1987; Weinberger & Spotts, 1989) were used to categorize general involvement levels for each product. Consequently, 24

products were selected, 15 of which represented high-involvement products and 9 of which represented low-involvement products. Table 3 has more information regarding the brands and product categories.

Table 3. Summary of Product Information Embedded in iPPLs

Product	Brand	Product Category	Product Involvement	Character
Shirt	American Eagle	Clothes	High	Chandler
Pants	Calvin Klein	Clothes	High	Chandler
Coffee	Starbucks	Beverage	Low	Chandler
Shirt	Abercrombie & Fitch	Clothes	High	Monica
Jeans	Banana Republic	Clothes	High	Monica
Mug Cup	Crate & Barrel	Kitchenware	Low	Monica
Sweater	Gap	Clothes	High	Joey
Jeans	Arizona Jeans	Clothes	High	Joey
Telephone	Panasonic	Electronics	Low	Joey
Shirt	The Limited	Clothes	High	Phoebe
Dress	DKNY	Clothes	High	Phoebe
Dessert	Sara Lee	Food	Low	Phoebe
Shirt	J.Crew	Clothes	High	Rachel
Skirt	Eddie Bauer	Clothes	High	Rachel
Mug Cup	Target	Tableware	Low	Rachel
Sweater	Polo Ralph Lauren	Clothes	High	Ross
Pants	Tommy Bahama	Clothes	High	Ross
Energy Drink	Impulse	Beverage	Low	Ross
Sofa (Big)	IKEA	Furniture	High	Background
Sofa (Small)	Art Van	Furniture	High	Background
Recliner Chair	La-Z-Boy	Furniture	High	Background
CD Rack	WalMart	Home Accessory	Low	Background
Bulletin Board	Office Max	Home Accessory	Low	Background
Pasta Bowl	Pottery Barn	Tableware	Low	Background

As mentioned above, no particular brand was visually appeared or verbally mentioned in the program. In order to increase the external validity of the study, brand names were selected from existing brands instead of assigning artificial brand names. The individual image of each product (as shown in Figure 3 and Figure 4) had to match its

actual appearance in the program. Therefore, each image was carefully created with computer graphic software to make it look exactly the same as the one that was shown in the program. Finally, each product was priced based on the actual prices of similar products in the market.

Currently, a participant has to click twice to view the product information (i.e., icon and list). Instead of clicking an icon, viewers should be allowed to click directly on the products as they are appearing in the program. However, such an interface has not been fully developed in the ITV industry, and due to the technological limitation, the use of an icon is reported as being a more viable option in the industry for the time being (Swedlow, 2000).

5.4. Procedure

Since existing brands were used, this study employed a pretest-posttest experimental design to measure changes in participants' attitude toward the brands. To avoid the priming effect and reduce their fatigue, participants' existing attitude toward the brands was measured two to three days prior to the main experiment. In the beginning of the posttest experiment, participants received a brief introduction to the overall experiment, which was followed by the measures of their initial (enduring) product involvement and (enduring) program involvement. Participants were then led to the computer screen where they were instructed about the use of the ITV interface created for the experiment.

To reduce the novelty effect, participants were forced to go through a short practice session. The material for the practice session was very similar to that of the main

stimulus material, except that it was made from a different episode of *Friends*. Six products were embedded in the 4-minute, single-scene practice material. Brand names were selected deliberately so that they would not overlap with the brands appearing in the main program. During the practice, participants were encouraged to click the icon and buttons to make themselves familiar with the ITV interface.

After the practice session, the participants in the treatment condition received information intended to increase their program involvement, whereas the participants in the control group received none. A modified version of Wright's (1973, 1974) manipulating was used. First, some background information about the program was provided to the participants in the treatment group. Second, they were told that large cable companies (i.e., AT&T Broadband and Cox Communication) were about to launch a test market project in their local area in which the participants would find the exact same interface being used. Finally, the participants were told that they would be asked to answer to certain questions regarding the storyline of the program when the program was over. In order to maximize the effect of manipulation, the participants were told that two participants who could provide most correct answers would win a cash prize.

As another device to minimize the novelty effect, all participants were strictly instructed that they should interact only with products they find to be of interest. Also, they were told that their activities on the computer screen (e.g., clicking a product, moving a mouse pointer) would be recorded by computer software. Although their activity was not "recorded," the information about the products clicked by each participant was saved in a local database for later analysis.

Participants watched the program wearing headsets so that other participants would not interrupt or distract them. When the program was over, participants went through a brief distracting task, which will be followed by the measure of brand recall. Next, in a separate questionnaire, participants were measured for other variables. Upon completing the questionnaire, they were debriefed and dismissed. Table 4 illustrates the experiment's overall procedure.

Table 4. Experimental Procedure

Steps	Treatment Group	Control Group
1	Initial measure of attitude toward brand (2 to 3 days prior to the main experiment)	
2	Introduction to the experimental procedure	
3	Measure of initial product & program involvement	
4	On-screen instruction on the experimental interface	
5	Practice session (4 minutes)	
6	On-screen treatment of program involvement	None
7	Main stimulus material (25 minutes)	
8	Involvement and Brand Recall measure	
9	Other measurement including second measure of A_B (in a separate questionnaire)	

5.5. Measurement

5.5.1. Measure of Involvement

All measures used in this study were adopted from previous studies in similar domains, and they used seven-point scales to facilitate further analysis in structural equation modeling. To examine the changes in the involvement levels, audiences' enduring involvement with a product category was measured twice – before and after watching the program. Product involvement was measured with 7-point semantic

differential scales, which were modified from the personal involvement inventory developed by Zaichkowsky (1994). The scales had five items that were anchored by “important / unimportant,” “interesting / boring,” “relevant / irrelevant,” “exciting / unexciting,” and “means a lot to me / means nothing.”

5.5.2. Measure of Attitude

Audience members’ attitudes toward the program and toward each character were measured with a semantic differential scale from MacKenzie and Lutz (1989). The five items were anchored by “good / bad,” “pleasant / unpleasant,” “favorable / unfavorable,” “appealing / unappealing,” and “attractive / unattractive.” The same scale was used to measure the audience’s attitudes toward each brand appearing in the study. However, as there are 24 brands that needed to be measured, the attitude toward the brand (A_B) scale was modified to a 3-item scale to maintain the overall length of the questionnaire at the reasonable level. Attitudes toward each brand and the program were measured twice in order to see the changes in their degrees before and after the experiment. As mentioned earlier, the attitude toward each brand was measured two to three days prior to the main experiment.

5.5.3. Measure of Recalls and Interactions

Participants’ unaided recall of advertised brands was measured using an open-ended question, which asked them to indicate for which brands they had seen an iPPL during the program. Finally, the data for the audience’s actual interactions with a particular iPPL was collected with computer software. The interaction with an iPPL was operationalized as an event in which a participant opens the final product information

window (as shown in Figure 4). Therefore, clicking the icon to open the list of available items (as in Figure 3) was not regarded as an interaction with an iPPL. The stimulus material was programmed to save each interaction made by a participant for the brand name and the order of interaction(s).

5.5.4. Demographics

At the end of the questionnaire, participants were asked to provide some personal information, such as gender, age, race, and class level (i.e., freshman, sophomore, etc.).

5.5.5. Manipulation Check

For a manipulation check, participants' level of involvement with the program was measured to examine whether the participants in the treatment group showed a higher level of involvement. This scale, with five 7-point semantic differential items, was identical to the scale that was used to measure participants' level of product involvement. Program involvement was also measured twice – once before the experiment and again after the program ended.

Chapter 6. Results

6.1. Manipulation Check

A t-test was performed to examine whether the participants in the treatment group demonstrated higher levels of program involvement than those in the control group.

Unexpectedly, the t-test indicated that there were no significant differences between the two groups ($t_{(393)} = 1.210, p > .05$). The results, in Table 5, show that both groups were above the midpoint of the scale. As the variance of the program involvement was small, the program involvement was trichotomized using a median split and the middle third was removed. In further analyses, only the responses that fell into the high- and low-involvement group were used ($N = 289$).

Table 5. Manipulation Check of Program Involvement

Initial Analysis						
	N	Mean	Std. Dev.	t	df	p
Treatment Group	198	5.4061	1.2947	-1.210	393	.227
Control Group	197	5.2475	1.3108			
Trichotomized						
	N	Mean	Std. Dev.	t	df	p
High Involvement	149	6.5171	.3667	-27.664	287	.000
Low Involvement	140	3.9386	1.0731			

A total of 24 brands, in eight different product categories, were employed for the iPPLs embedded in the stimulus material. The product categories included clothes, furniture, inexpensive electronic goods, home accessories, tableware, kitchenware, beverage, and dessert. As mentioned earlier, clothes and furniture were selected to

represent high involvement products, while the rest of the categories were representing low involvement products. Although this classification was based on previous literature (e.g., Ratchford, 1987; Weinberger & Spotts, 1988), participants' level of involvement with the above product categories were measured because the typologies from the aforementioned literature were based on non-student samples. One-way within-subjects analysis of variance (ANOVA) was performed and the result is shown in Table 6.

Table 6. Product Involvement

Product Categories	Mean	Std. Deviation	N
Clothes	6.143	.900	288
Furniture	5.237	1.067	288
Telephones (Inexpensive electronics)	5.015	1.328	288
Beverages	4.993	1.124	288
Home Accessories	4.937	1.295	288
Kitchenware	4.369	1.249	288
Tableware	4.176	1.185	288
Desserts	3.846	1.473	288

	df	MS	F	p
Product Involvement/Within-Subjects	7	146.90	144.61	.00

Although the differences in product involvement across the categories were significant, the result showed a different pattern from Ratchford (1987) and Weinberger and Spotts (1988). Specifically, inexpensive electronic goods, home accessories, and beverages were found to have moderate-to-high levels of involvement; and kitchenware and tableware showed medium levels of involvement. Desserts were found to have a low level of involvement as expected. Based on the above results, product involvement was treated as a continuous variable in further tests of hypotheses.

6.2 Sample Size and Composition

A total of 396 usable questionnaires were collected for data analysis. However, following the trichotomization from the above manipulation check on program involvement, 107 responses in the middle were discarded, and 289 were used for further analyses. The final sample consisted of 192 females (66.4%) and 97 males (33.6%). The average age of the participants was 20.5 years, and whites (non-Hispanic) represented 72.3% of the overall participants. Finally, they consisted of 51 freshmen (17.6%), 61 sophomores (21.1%), 115 juniors (39.8%), and 62 seniors (21.4%). One hundred forty-nine participants were assigned to the high program-involvement group and 140 were assigned to the low-involvement group.

6.3. Scale Reliability

The reliabilities of each construct were assessed using Cronbach's alpha. All of them indicated high levels of reliability ranging from .86 to .97 to indicate that the scales used in this study had adequate internal consistency and were appropriate for further analyses. Table 6.3 summarizes each scale with its source and reliability.

6.4. The Effects of Product Involvement on Interactions

The first two hypotheses (H1 and H2) tested the impact of participants' level of product involvement on the amount of interactions and recalled brands, respectively. Separate bivariate regression analyses were employed to test the hypotheses. Here only background products and brands that are not paired with particular characters were selected for the analysis because participants' attitude toward certain characters might

Table 6.4.1. Descriptive Statistics and Reliabilities for Scales Used in the Study

Variables	Subscale	Alpha	Subscale	Alpha	Overall Alpha	Items in Scale
Program Involvement	Time 1	.9476	Time 2	.9472	.9501	5
Attitude toward the Program	Time 1	.9636	Time 2	.9661	.9649	5
Product Involvement*	Tableware	.8615	Clothes	.8851	.8911	5
	Beverages	.8751	Home Acc.	.9237		
	Telephones	.8922	Desserts	.9314		
	Furniture	.8717	Kitchenware	.8885		
Attitude Toward Character	Chandler	.9199	Joey	.9089	.9180	5
	Monica	.9200	Phoebe	.9173		
	Rachel	.9120	Ross	.9296		
Attitude toward the Brand*	J.Crew	.9530	IKEA	.9705	.9492	3
	Gap	.9361	Art Van	.9499		
	Eddie Bauer	.9177	La-Z-Boy	.9512		
	Banana Republic	.9582	Target	.9502		
	American Eagle	.9581	WalMart	.9694		
	Arizona Jeans	.9112	Office Max	.9387		
	Tommy Bahama	.9324	Pottery Barn	.9682		
	The Limited	.9627	Crate & Barrel	.9641		
	DKNY	.9455	Panasonic	.9298		
	Sara Lee	.9371	Abercrombie	.9679		
	Impulse	.9423	Calvin Klein	.9439		
	Starbucks	.9649	Polo	.9576		
	Mean		Std. Deviation			
Interactions	3.9343		3.7313			
Recalled Brands	1.6125		2.1234			

* Product Involvement and Attitude toward a brand were also measured twice. Listed alphas for individual brands and product categories show the average alpha scores of Time 1 and Time 2.

have influenced the amount of interactions and recall along with their product.

involvement. Therefore, the product involvement with furniture, home accessories, and

tableware were examined in relation to the interactions and recall of those categories.

(See Table 3 for information on background products and brands.)

Hypothesis 1 posited that participants who have higher level of involvement with a particular product category would demonstrate a higher amount of interactions with iPPLs featuring brands of that product category. To test this, the amount of interactions with the brands in each product category (i.e., furniture, home accessories, tableware) was regressed on the product involvement on each category. The results are summarized in Table 6.4.2 and 6.4.3. They indicate that participants' level of involvement was positively associated with the amount of interactions in all three product categories, and thus Hypothesis 1 was supported.

Table 6.4.2. Descriptive Statistics on Product Involvement (BG) and Interactions

Product Category	Involvement		Interactions*	
	Mean	Std. Deviation	Mean	Std. Deviation
Furniture	5.2433	1.0698	1.5017	1.1400
Home Accessories	4.9375	1.2926	.9481	1.0479
Tableware	4.1813	1.1868	.4429	.5181

* Three furniture brands, two home accessory brands, and one tableware brand were used in the study, and the listed amount of interactions represent the average amount of interactions per each brand to ease comparison.

Table 6.4.3. Relationship between Product Involvement and Interactions

Independent Variables: Product Involvement

Dependent Variable: Amount of Interactions

Product Category	Std. Coefficients	t	df	R ²	Adjusted R ²	Std. Error of the Estimate	p
Furniture	.509	10.007	287	.259	.256	.9832	.000
Tableware	.540	10.864	287	.291	.289	.4369	.000
Home Accessories	.385	7.071	287	.148	.145	.9687	.000

6.5. The Effects of Product Involvement and Attitude toward the Program on Recall

Similarly, only background products and brands were analyzed in testing the relationship between product involvement and the number of brands recalled (Hypothesis 2). However, the levels of product involvement in three product categories were averaged, and tested in relation to the combined amount of recalls of the six brands that belong to the three product categories. As seen in Table 6.5.1, the overall amount of recall was small and most participants reported no recalls of those background brands.

Table 6.5.1. Descriptive Statistics on Brand Recalls

	Mean	Std. Deviation
Recall: Background Brands	.8028	1.0438
Recall: All Brands	1.6125	2.1234
Product Involvement: BG Categories Combined	4.7874	.9338

Hypothesis 2 posited that participants who have higher level of involvement with a particular product category would recall more brands that appear in iPPLs of that product category. Also, Hypothesis 5 posited that participants with more positive attitude toward the program would recall more brands. These hypotheses were tested with multiple regression, and the overall number of recalled brands in the three background product categories was regressed on the combined product involvement of each category and participants' attitude toward the program. The results are summarized in Table 6.5.2.

Participants' level of involvement was found to be positively associated with the number of brands recalled ($R^2=.079$; $p<.01$). Although the strength of the association is weaker than that of Hypothesis 1, the result shows that Hypothesis 2 was supported. On the contrary, the results indicate that participants' attitude toward the program is not

significantly related with the recall (i.e., significance of coefficient $>.05$). From this, Hypothesis 5 was rejected.

Table 6.5.2. Relationship between Product Involvement, A_{PROG} , and Recalls

Dependent Variable: Amount of Recalled Brands								
Independent Variable	Std. Coefficients	t	df	Sig. Coeff.	R^2	Adj. R^2	Std. Error of the Estimate	p
Involvement*	.269	4.498	286	.000	.079	.073	1.0494	.000
Attitude-Program	.036	.602		.548				

* Involvement with the product categories that incorporate background brands

6.6. The Effects of Program Involvement on Recall and Interactions

Hypothesis 3 and Hypothesis 4 posited that participants who report higher levels of involvement with the program would show fewer interactions and brands recalled, respectively. As mentioned earlier, program involvement was trichotomized and the conditions at the two ends (high vs. medium) were compared to test these hypotheses. Again, only the background brands were taken into the analyses.

Multivariate analysis of variance was performed on the amount of interaction and recalled brands, and Hotelling's T^2 was examined as it is not acceptable to use separate t-tests on possibly correlated dependent variables (Tabachnick & Fidell, 2000, p, 20). The Hotelling T^2 statistics provide a single overall test of the group differences on two separate dependent variables – amount of interactions and recalled brands. The results are summarized in Table 6.6.

The results indicated that the differences were significant. However, they were not in the predicted direction. Participants in the high program involvement condition demonstrated higher levels of interactions ($M=3.41$) than those in the medium-level

condition (M=2.34). Likewise, participants in the high program involvement condition recalled more brands (M=.93) than those in the medium-level condition (M=.66).

Therefore, both Hypothesis 3 and Hypothesis 4 are rejected.

Table 6.6. Interactions and Recalls in Program Involvement Conditions

Dependent Variables	Program Inv.	Mean	Std. Dev.	t	Sig. t	Wilks' Lambda	Approx F	df	Sig. F
Interactions	High	3.409	2.125	-2.2009	.029	.923	11.937	286	.000
	Medium	2.343	1.700						
Recall	High	.933	1.101	-4.6938	.000				
	Medium	.664	.964						

6.7. The Effects of Attitude toward the Program on Interactions

Hypothesis 6 posited that participants with more positive attitude toward the program (A_{PROG}) would show fewer interactions with iPPLs. To test the relationship, the amount of interactions with background brands was regressed on the attitude toward the program. Table 6.7 summarizes the results.

Table 6.7. Relationship between A_{PROG} and Interactions

Independent Variables: Attitude toward the Program							
Dependent Variable	Std. Coefficients	t	df	R ²	Adjusted R ²	Std. Error of the Estimate	p
Interactions	.175	3.009	287	.031	.027	1.9723	.003

The results indicate that participants' attitude toward the program was positively associated with the amount of interactions with background brands. However, the direction of the association indicates that it is positively related, which means that a more

positive attitude toward the program resulted in a higher number of interactions. Furthermore, the A_{PROG} was not found to be a major predictor for the amount of interactions (Adjusted $R^2=.027$), which implies that the relationship is not highly meaningful. Although the association was statistically significant, Hypothesis 6 could not be supported.

6.8. The Effects of Attitude toward the Program on Attitude toward Brands in the Program

Hypothesis 7 tested the affect transfer hypothesis (Mitchell & Olson, 1981; Shimp, 1981) – particularly the influence of participants' attitude toward the program (A_{PROG}) on the attitude toward the brands (A_{B}) appearing in the program. Unlike the previous analyses that used only background brands, this analysis was conducted on all 24 brands appearing in the program. Because existing brand names were used in the stimulus material, the changes in A_{B} ($A_{\text{B}2} - A_{\text{B}1}$: the difference between the second measure of A_{B} and first measure of A_{B}) were examined for the analysis. Also, the changes in A_{B} of the non-interacted brands were not taken into the analysis. It should be noted that the participants were exposed to the brand information only when they interacted with the corresponding iPPLs.

This means that the participants who did not interact with the iPPL of “Brand A” had no means to find out whether the “Brand A” appeared in the program. Consequently, it is reasonable to expect that the difference between the $A_{\text{B}2}$ and $A_{\text{B}1}$ of non-interacted brands should not be statistically significant. To test this relationship and hypothesis, participants' interaction responses had to be recoded. Interacted brands and non-

interacted brands varied for every single participant. That is, participant A could have interacted with brands A, C, and D, while participant B could interact with brands C, E, and F. Therefore, for each participant, all brands were grouped into either “interacted” or “non-interacted” brands. Next, the first A_B measures of those “interacted (A_{BI1})” and “non-interacted (A_{BNI1})” brands were calculated one by one for each participant, and the same was done for the second measure of A_B (i.e., A_{BI2} and A_{BNI2}) Finally, the difference between A_{B2} and A_{B1} (i.e., changes in A_B) for both interacted brands (A_{BID}) and non-interacted brands (A_{BNID}) were calculated based on those newly calculated values, and used for further analyses. The Table 6.8.1 illustrates this process.

Table 6.8.1. Calculation of Interacted- and Non-interacted A_B : Example

	Brand A			Brand B			Brand C			Brand D			Mean		
	A_{B1}	A_{B2}	A_{BD}	A_{B1}	A_{B2}	A_{BD}	A_{B1}	A_{B2}	A_{BD}	A_{B1}	A_{B2}	A_{BD}	A_{B1}	A_{B2}	A_{BD}
Participant 1	3	5	2	4	4	0	6	7	1	5	6	1	4.5	5.5	1.0
	Interacted			Interacted			Non-interacted			Non-interacted					
Participant 2	6	6	0	5	5	0	5	7	2	2	4	2	4.5	5.5	1.0
	Non-interacted			Non-interacted			Interacted			Interacted					

	A_B : Measure 1		A_B : Measure 1		A_B : Difference	
Participant 1	$A_{BI1} = (3 + 4) / 2 = 3.5$		$A_{BI2} = (5 + 4) / 2 = 4.5$		$A_{BID} = 4.5 - 3.5 = 1.0$	
	$A_{BNI1} = (6 + 5) / 2 = 5.5$		$A_{BNI2} = (7 + 6) / 2 = 6.5$		$A_{BNID} = 6.5 - 5.5 = 1.0$	
Participant 2	$A_{BI1} = (5 + 2) / 2 = 3.5$		$A_{BI2} = (7 + 4) / 2 = 5.5$		$A_{BID} = 5.5 - 3.5 = 2.0$	
	$A_{BNI1} = (6 + 5) / 2 = 5.5$		$A_{BNI2} = (6 + 5) / 2 = 5.5$		$A_{BNID} = 5.5 - 5.5 = 0.0$	

In the above example, the mean scores of all A_B changes (A_{BD}) are equal for both participants. However, the difference between the two participants can be found when calculating interacted and non-interacted brands separately, and it turns out that Participant 2 showed more improvements in A_B over interacted brands compared to Participant 1.

As mentioned earlier, A_{B1} is assumed to be equal to A_{B2} if the brand was not interacted with. To test this assumption, a one-sample t-test was performed using the changes in A_B scores for the non-interacted brands, and the result (Table 6.8.2) indicates that the difference was not significant.

In testing Hypothesis 7, participants who did not make any interactions at all were eliminated from this analysis. It is because, by definition, the participants with no interactions are not expected to demonstrate any changes in A_B . This decreased the total number of participants to 242. Finally, to test Hypothesis 7, the differences in attitude toward the interacted brands (A_{BID}) were regressed on the participants' attitude toward the program (A_{PROG}). Table 6.7.3 summarizes the results.

The results indicate that participants' attitude toward the program was positively associated with the changes in their attitude toward the interacted brands (A_{BID}).

Therefore, Hypothesis 7 was supported.

Table 6.8.2. A_B Changes in Non-Interacted Brands: Statistical Significance

	Min*	Max*	Mean	Std. Dev.	Median	Mode	t	df	p
A_{BNID}	-1.3667	1.2698	.0402	.3799	.0401	.0000	1.606	229	.110

Table 6.8.3. Regression: Relationship between A_{BID} and A_{PROG}

Independent Variable: Changes in Attitude toward the Interacted Brands (A_{BNID})

Dependent Variable	Std. Coefficients	t	df	R^2	Adjusted R^2	Std. Error of the Estimate	p
A_{PROG}	.491	8.660	236	.241	.238	.6148	.000

6.9. The Effects of Attitude toward the Characters (of the Program) on Interactions and Recall

The next two hypotheses (H8 and H9) tested the impact of participants' attitude toward each character on the amount of interactions and recalled brands. Separate bivariate regression analyses were employed to test the hypotheses. However, in these analyses, only the brands that are paired with particular characters were selected because the interactions or recalls of unpaired brands (i.e., background brands) would be free from the effects of participants' attitude toward characters. (See Table 3 for information on brands paired with particular characters.)

Hypothesis 8 posited that participants who have a positive attitude with each character (A_{CHAR}) would demonstrate a higher number of interactions with iPPLs paired with each character. To test this, the number of interactions with the iPPLs paired with each character (i.e., Chandler, Joey, Monica, Phoebe, Rachel, and Ross) was regressed on the attitude toward each character. The results are summarized in Table 6.9.1 and 6.9.2.

The results indicate that in most cases (except for one character, Joey) participants' attitude toward the character was positively associated with the amount of interactions. The results partially support Hypothesis 8. However, it should be noted that the effect sizes were relatively small. The adjusted R^2 ranged from .014 (Ross) to .218 (Rachel). But when excluding Rachel, the range of the adjusted R^2 reduces to .014 to .099 (Chandler). Although these are weak, they are still stronger than the relationship between the attitudes toward the program and the amount of interactions (Adjusted $R^2 = .027$, see Table 6.7). This illustrates that although both attitudes could not explain much of the audience's amount of interactions, the attitude toward the character is a better predictor.

Table 6.9.1. Descriptive Statistics on Character: A_{CHAR} and Interactions

Characters	Number of Paired iPPLs	A _{CHAR}		Interactions	
		Mean	Std. Dev.	Mean	Std. Dev.
Chandler	3	5.9856	1.0807	.2215	.6662
Joey	3	5.7780	1.0984	.5848	.9170
Monica	3	5.8047	1.0755	.4583	.8462
Phoebe	3	5.5356	1.2469	.6159	.9545
Rachel	3	6.3453	.7980	1.1869	1.3918
Ross	3	5.6287	1.1895	.4948	.9687

Table 6.9.2. Relationship between A_{CHAR} and InteractionsIndependent Variables: A_{CHAR}

Dependent Variable: Amount of Interactions

Characters	Std. Coefficients	t	df	R ²	Adjusted R ²	Std. Error of the Estimate	p
Chandler	.320	5.714	287	.102	.099	.8704	.000
Joey	-.114	-1.947	287	.013	.010	.6630	.052
Monica	.204	3.531	287	.042	.038	.8298	.000
Phoebe	.277	4.879	287	.077	.073	.9188	.000
Rachel	.469	9.006	287	.220	.218	1.2311	.000
Ross	.130	2.224	287	.017	.014	.9621	.027

Hypothesis 9 posited that participants with a positive attitude toward each character would show more recalled brands paired with each character. Similarly, only paired brands were analyzed in testing Hypothesis 9, but the number of recalled brands was collapsed into a single score (i.e., the number of recalled brands paired with any characters) because most participants could recall nothing when each character's brands were separately examined. (see Table 6.9.3.) Also, as in testing Hypothesis 7, participants who did not make any interactions at all were eliminated from this analysis. It was because the participants who did not make any interactions were not expected to recall any brands. This reduced the total number of participants to 242.

To test Hypothesis 9, the combined amount of recall was regressed on the participants' combined attitude toward the characters. The results are summarized in Table 6.9.4, and it was found that the relationship was not significant. Therefore, Hypothesis 9 is rejected.

Table 6.9.3. Descriptive Statistics on A_{CHAR} and Recalls of Paired Brands

	Mean	Std. Deviation	Median	Mode
A _{CHAR} (Combined)	5.9491	.7388		
Recall: Paired Brands	.9545	1.9201	.00	.00

Table 6.9.4. Regression: Relationship between A_{CHAR} (combined) and Recalls

Independent Variable: A_{CHAR} (combined)

Dependent Variable	Std. Coefficients	t	df	R ²	Adjusted R ²	Std. Error of the Estimate	p
Recall	.000	.003	240	.000	-.004	1.9241	.998

6.10. The Effects of Attitude toward the Characters on the Attitude toward Paired Brands

As with Hypothesis 7, Hypothesis 10 tested another instance of the affect transfer hypothesis, but in this case the influence of participants' attitude toward each character (A_{CHAR}) on the attitude toward the paired brands (A_B) was examined. As mentioned earlier, the changes in attitude toward brands were used because existing brands were used in this study. Also, paired brands (excluding background brands) were taken into the analysis again, and participants who did not interact at all were not examined. A series of bivariate regression analyses were performed to test the hypotheses. Table 6.10.1 shows

the descriptive information regarding participants' attitude toward brands paired with each character, and Table 6.10.2 shows the result of the hypothesis testing.

The results indicate that in most cases (except for one character, Phoebe) participants' attitude toward the character was positively associated with the attitude toward the paired brands. Therefore, Hypothesis 10 was partially supported. When comparing the effect sizes in Table 6.10.2 (i.e., Adjusted R^2 ranging from .023 to .084) to that in Table 6.8.3 (Adjusted $R^2 = .238$), it can be found that the consumers' A_{PROG} is a better predictor than A_{CHAR} in explaining the changes in their A_B .

Table 6.10.1. Descriptive Statistics on Character: A_{CHAR} and Interactions

Characters	Number of Paired iPPLs	A_B^*	
		Mean	Std. Dev.
Chandler	3	.2824	.6819
Joey	3	.2679	.6862
Monica	3	.2006	.6162
Phoebe	3	.0744	.7847
Rachel	3	.1646	.6514
Ross	3	.3147	.7279

* A_B represents the changes in A_B between the first measure and second measure.

Table 6.10.2. Relationship between A_{CHAR} and A_B

Independent Variables: A_{CHAR}

Dependent Variable: Changes in A_B

Characters	Std. Coefficients	t	df	R^2	Adjusted R^2	Std. Error of the Estimate	p
Chandler	.297	4.816	240	.088	.084	.6526	.000
Joey	.163	2.564	240	.027	.023	.6784	.011
Monica	.199	3.145	240	.040	.036	.6051	.002
Phoebe	.108	1.683	240	.012	.008	.7817	.094
Rachel	.257	4.118	240	.066	.062	.6309	.000
Ross	.218	3.464	240	.048	.044	.7118	.001

6.11. The Effects of Gender on Interactions

Hypothesis 11 posited that male audiences would show more interactions with the embedded iPPLs than female participants. To test this, all interactions (i.e., interactions with paired brands and background brands) were examined, and a t-test was performed to see if male participants and female participants showed different amounts of interactions. Table 6.11 shows the result, and it shows that male participants and female participants did not show significant differences in terms of the amount of interactions. Therefore, Hypothesis 11 was rejected. (Interestingly, females actually had a higher mean than males, so if the differences had been significant, Hypothesis 11 would still be rejected.)

Table 6.11. Amount of Interactions Across Genders

	Mean	Std. Deviation	t	df	p
Male	3.3505	2.6287	-1.899	287	.059
Female	4.2292	3.7570			

6.12. The Relationship between Recall and Interactions

Hypothesis 12 posited that participants' amount of interactions and the number of recalled brands would be positively correlated. To test this, interactions and recall on all brands (i.e., background and paired) were examined, and the number of recalled brands was regressed on the amount of interactions. The results show that the Hypothesis 12 was supported ($R^2 = .239$, $p = .00$). (see Table 6.12.)

Table 6.12. Regression: Relationship between Interactions and Recalls

DV	Std. Coefficients	t	df	R^2	Adjusted R^2	Std. Error of the Estimate	p
Recall	.489	9.506	287	.239	.237	1.8551	.000

6.13. The Effects of Interactions on Changes in the Level of Product Involvement

Hypothesis 13 posited that participants' interactions with iPPLs would increase their level of involvement with product categories with which they interacted. Interactions with all brands (i.e., background and paired) were examined. Also, since the relationship focuses on the effect of interactions on involvement change, the changes between two product involvement measures were examined. (Note that the product involvement was measured twice.)

Each of eight product categories was tested. Table 6.13.1 shows the descriptive nature of changes in product involvement in those categories, and the results are in the opposite direction from what was expected in the hypothesis. That is, most categories except tableware show decreased levels of involvement. Eight separate bivariate regression analyses were performed to examine their significance, and the results are found in Table 6.13.2.

Table 6.13.1. Descriptive Statistics on Product Involvement Changes

Product Categories	Measure 1	Measure 2	Difference (Mean)	Std. Deviation
Clothes	6.1459	6.1400	-.0059	.5278
Furniture	5.2433	5.2275	-.0157	.8649
Inexp. Electronics	5.0146	4.7640	-.2507	.9002
Beverages	4.9933	4.8907	-.1026	.8048
Home Accessories	4.9375	4.9152	-.0223	1.0618
Kitchenware	4.3779	4.2794	-.0984	1.0045
Tableware	4.1813	4.3910	.2097	.9343
Desserts	3.8457	3.7162	-.1295	.5544

The results indicate that the changes in product involvement were significant in only three categories (i.e., clothes, furniture, and tableware). However, clothes and furniture displayed decreases in involvement. Besides, considering the increase in

tableware was only marginal ($p = .041$), it can be interpreted that Hypothesis 13 is rejected.

Table 6.13.2. Relationship between Interactions and Product Involvement

Product Categories	Std. Coefficients	t	df	R ²	Adjusted R ²	Std. Error of the Estimate	p
Clothes	.161	2.766	287	.026	.023	.5218	.006
Furniture	.156	2.675	287	.024	.021	.8558	.008
Inexp. Electronics	.006	.104	287	.000	-.003	.9018	.918
Beverages	.056	.952	287	.003	.000	.8049	.342
Home Accessories	.045	.728	287	.002	-.002	1.0626	.467
Kitchenware	.060	1.013	287	.004	.000	1.0044	.312
Tableware	.120	2.054	287	.014	.011	.9292	.041
Desserts	.091	1.545	287	.008	.005	.8737	.123

6.14. The Effects of Interactions on Changes in the Level of Program Involvement

Finally, Hypothesis 14 posited that participants' interactions with iPPLs would result in increased level of involvement with the program. The difference between two program involvement measures (i.e., Program involvement measure 2 - Program involvement measure 1) was regressed on the amount of interactions. Again, all interactions within the program (i.e., interactions with background and paired brands) were examined.

Table 6.14.2 shows the result, which indicates that the amount of interactions was significantly related with the increase in the program involvement ($R^2 = .210$, $p = .00$). Therefore, Hypothesis 14 was supported.

Table 6.14.1. Descriptive Statistics on Program Involvement Changes

	Measure 1	Measure 2	Difference (Mean)	Std. Deviation
Program Involvement	4.9232	5.2680	.3448	.4913

Table 6.14.2. Relationship between Interactions and Changes in Program**Involvement**

Dependent Variable	Std. Coefficients	t	df	R ²	Adjusted R ²	Std. Error of the Estimate	p
Program Involvement	.458	8.734	287	.210	.207	.4374	.000

6.15. Interaction Effects of Product Involvement and Program Involvement on Interactions (Study 1)

In addition to the above hypotheses, interaction effects were tested as well. First, the roles of two different involvements (i.e., involvement with product categories and the program) on interactions were examined. Based on the hypotheses, involvement with a certain product category was expected to increase the amount of interactions with iPPLs of the corresponding category, whereas the involvement with the program was expected to decrease the overall amount of interactions. The purpose of examining the interaction effect of both involvement types was to test which involvement type would have a greater effect on the amount of interactions. However, the results from the hypothesis test showed that participants' involvement with the program also had a positive relationship with the amount of interactions. (See Hypothesis 3.)

Nevertheless, the interaction effect of program involvement $\times$ product involvement was examined. A mixed analysis of variance (ANOVA) was conducted because program involvement was a between-subject variable and product involvement was a within-subject variable. Interactions were examined only for background brands, excluding interactions with brands paired with a particular character.

First, the amount of interaction with particular product categories had to be calculated based on the product involvement. As mentioned earlier, three product categories were used for background brands, and they were furniture (3 brands), home accessories (2 brands), and tableware (1 brand). Among these, furniture ($M = 5.24$) and home accessories ($M = 4.94$) were combined into high involvement product, whereas tableware ($M = 4.18$) was categorized as a low involvement product. The high involvement product category had five brands, thus, to ease the comparison, the amount of interactions per brand was calculated for high involvement products. Next, mixed ANOVA was conducted. Table 6.15 shows the results.

Interaction effects were not found between program- and product involvement. Moreover, the results show that the main effect of product involvement was not significant either. This is an interesting finding because the earlier test of Hypothesis 1 indicated a positive relationship between product involvement and the amount of interactions (Table 6.4.2). It should be noted that simple regression analysis was employed to test Hypothesis 1 (i.e., Effects of Product Involvement on Interactions). However, in examining the interaction effect the amount of interactions was dichotomized to those in high involvement products and low involvement products, and the mean scores were compared. The non-significant result of the main effect of product

involvement can be explained by the loss of variance of product involvement that occurs in this dichotomization process.

Table 6.15. Interactions Effects: Product Involvement $\times$ Program Involvement

Dependent Variable: Amount of Interactions with Background Items

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	High Inv. with Program	.568	.385	149
	Low Inv. with Program	.401	.322	140
Low Involvement Products	High Inv. with Program	.550	.538	149
	Low Inv. with Program	.329	.471	140

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.30	2.22	.137
Program Involvement (Between-Subjects)	1	5.46	21.77	.000
Product $\times$ Program Involvement	1	.11	.81	.368
Error	287	.13		

6.16. The Interaction Effects of Product Involvement and Attitude toward Program on Interactions and Attitude toward Brands (Study 2)

The interaction effects of product involvement $\times$ attitude toward the program on the amount of interactions and attitude toward brands were tested. Earlier results of hypothesis testing showed that product involvement was positively related with the amount of interactions (Hypothesis 1), attitude toward the program was positively related with the amount of interactions (Hypothesis 6) and with the attitude toward brands (Hypothesis 7). To test the interaction effect, only background brands were examined.

Furniture (3 brands) and home accessories (2 brands) were used for the high involvement products, and tableware was used for the low involvement product. The mean scores of attitude toward brand in each product involvement condition were calculated for analysis.

Next, attitude toward program was trichotomized for the analysis as the participants demonstrated generally positive attitude toward the program. (See Table 6.16.1 for descriptive statistics.) With the middle group eliminated, there were 202 responses available for this analysis.

Table 6.16.1. Attitude toward Program: Creating Conditions

	Attitude Scores		Conditioning Criteria	N**
	Mean	Median		
Attitude toward Program	5.8683	6.20	Highly Positive* M = 7.0	101
			Med-Positive 5.7 < M < 7.0	87
			Less Positive* M < 5.7	101

* used for conditioning

** Total N = 289

With these newly created attitude toward program conditions (Highly Positive vs. Less Positive) and product involvement categories, a mixed ANOVA was conducted again as the product involvement was a within-subject variable. Table 6.16.2 summarizes the results of the product involvement $\times$ attitude toward the program interaction effect on the amount of interactions.

Table 6.16.2. Interactions Effects: Product Involvement $\times$ Program Attitude

Dependent Variable: Amount of Interactions with Background Items

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{PROG}	.514	.377	101
	Less Positive A _{PROG}	.406	.305	101
Low Involvement Products	Highly Positive A _{PROG}	.475	.540	101
	Less Positive A _{PROG}	.307	.464	101

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.48	3.34	.069
Program Involvement (Between-Subjects)	1	1.93	8.48	.004
Product $\times$ Program Involvement	1	.09	.64	.425
Error	200	.14		

The interaction effects on the amount of interactions were not found between product involvement and attitude toward the program. Next, the same interaction effect (i.e., product involvement $\times$ attitude toward the program) was examined on the changes in the attitude toward the brands in iPPLs ($A_{B2} - A_{B1}$: the difference between the second measure of A_B and first measure of A_B). Product involvement was not hypothesized to affect the valence of attitude toward the program. However, the affect transfer hypothesis predicts that the positive or negative attitude toward the program would be reflected in the attitude toward the brands placed in the program. The purpose of examining this interaction effect was to see in which product involvement condition (i.e., high vs. low) the affect transfer hypothesis would be more strongly identified. Another mixed ANOVA was conducted.

As in testing Hypothesis 7 (i.e., effect of attitude toward program on attitude toward brands), the participants who made at least one interaction were taken into the

analysis because those who did not interact with iPPLs were not assumed to show any significant changes in attitude toward brands. Test of Hypothesis 7 employed all 24 brands in this analysis. However, the changes in attitude toward background brands were examined in testing the Product Involvement $\times$ Program Attitude interaction effect. It was to control for the possible effects from attitude toward each character. Table 6.16.3 shows the results of the interaction effect analysis.

Table 6.16.3. Interactions Effects: Product Involvement $\times$ Program Attitude

Dependent Variable: Changes in Attitude toward the Background Brands

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{PROG}	-.015	.639	89
	Less Positive A _{PROG}	.165	.642	75
Low Involvement Products	Highly Positive A _{PROG}	.127	.703	89
	Less Positive A _{PROG}	.267	1.047	75

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	1.21	2.29	.132
Program Attitude (Between-Subjects)	1	2.08	3.21	.075
Product $\times$ Program Attitude	1	.03	.07	.799
Error	162	.53		

No interaction effect was found. However, the main effect of the attitude toward the program (A_{PROG}) suggests an interesting finding. Although not statistically significant ($p = .075$), the mean scores of changes in attitude toward brands (A_B) show that the changes were greater in less positive A_{PROG}, suggesting a negative relationship between A_{PROG} and A_B. This is opposite to the findings in Hypothesis 7, where A_{PROG} was found to have a positive relationship with A_B. Also, the participants with highly positive A_{PROG}

showed a decrease in A_B of high involvement products ($M = -.015$). It was not statistically significant, but it suggests another interesting implication.

6.17. The Interaction Effects of Program Involvement and Attitude toward Program on Interactions and Attitude toward Brands (Study 3)

The interaction effects of program involvement $\times$ attitude toward the program on the amount of interactions and attitude toward brands were tested by two-way ANOVA. Results from Hypothesis 3 and 6 showed that the amount of interactions was positively related with program involvement and attitude toward the program, respectively. The between-subjects attitude toward the program conditions (i.e., highly positive vs. less positive) and program involvement conditions (i.e., high vs. low) created previously were used. Also, only background brands were examined. First, the interaction effect was examined on the participants' amount of interactions.

The results in Table 6.17.1 show that no interaction effect was found. Likewise, the results indicate that the main effect of A_{PROG} was not significant. In fact, attitude toward the program (A_{PROG}) was found to have a positive relationship with the amount of interactions (Hypothesis 6). This conflict of results might be explained by the loss of variance of A_{PROG} that occurred in the trichotomizing process. That is, the effect of A_{PROG} was tested with a simple regression analysis in testing Hypothesis 6 and yielded a significant but weak relationship ($R^2 = .031$). The trichotomization process ignores the variance of A_{PROG} in the same condition and consequently the main effect could have produced non-significant results. The above results also indicate that A_{PROG} has a

negative relationship with the amount of interactions in low program involvement condition. However, this relationship was not found to be statistically significant.

Table 6.17.1. Interactions Effects: Program Involvement $\times$ Program Attitude

Dependent Variable: Amount of Interactions

Independent Variables		Mean	Std. Deviation	N
High Program Involvement	Highly Positive A _{PROG}	3.20	2.109	91
	Less Positive A _{PROG}	2.67	1.506	6
Low Program Involvement	Highly Positive A _{PROG}	2.00	.943	10
	Less Positive A _{PROG}	2.34	1.609	95

Independent Variables		df	Mean Square	F	p
Program Involvement		1	25.654	6.916	.009
Program Attitude		2	6.265	1.689	.187
Program Involvement $\times$ Program Attitude		2	2.586	.697	.499
Error		283	3.709		

The interaction effect of program involvement $\times$ attitude toward the program on the changes in attitude toward brands was also tested. Results from Hypothesis 7 showed that attitude toward brands was positively related with attitude toward the program. On the other hand, program involvement is not hypothesized to be related with the valence of attitude toward brands. The purpose of examining this program involvement $\times$ attitude toward the program interaction effect was to see in which program involvement condition (i.e., high vs. low) the affect transfer hypothesis would be more strongly identified. Another two-way ANOVA was conducted, but no interaction effect was found. Table 6.17.2 illustrates the results.

Table 6.17.2. Interactions Effects: Program Involvement $\times$ Program Attitude

Dependent Variable: Changes in Attitude toward the Background Brands

Independent Variables		Mean	Std. Deviation	N
High Program Involvement	Highly Positive A _{PROG}	.0542	.5636	91
	Less Positive A _{PROG}	.4630	.6292	6
Low Program Involvement	Highly Positive A _{PROG}	-.4722	.5588	10
	Less Positive A _{PROG}	.1941	.6250	95

Independent Variables		df	Mean Square	F	p
Program Involvement		1	2.897	8.521	.004
Program Attitude		2	2.335	6.870	.001
Program Involvement $\times$ Program Attitude		2	.355	1.044	.353
Error		283	.340		

Another problem from the above results is that the program involvement and the program attitude were too closely related. Note that this relationship was not hypothesized and not tested because the program involvement would not affect the valence of the attitude. The relationship is found from the sample size in each cell. (see Tables 6.17.1 and 6.17.2.) Both program involvement and attitude toward the program were trichotomized, and the participants in the two extreme ends were taken into the analyses. Consequently, participants were similarly distributed in high (N = 149) and low (N = 140) involvement conditions. Likewise, participants were similarly distributed in positive (N = 87) and less positive (N = 101) A_{PROG} conditions. Nevertheless, most participants ended up in either high-involvement / highly-positive A_{PROG} or low-involvement/less-positive A_{PROG} condition because the involvement and attitude were closely related.

6.18. The Interaction Effects of Attitude toward Program and Attitude toward Characters on Interaction and Attitude toward Brands (Study 4)

The interaction effects of attitude toward the program (A_{PROG}) $\times$ attitude toward the character (A_{CHAR}) on the amount of interactions and attitude toward brands were tested. Three conditions for attitude toward character (i.e., highly positive vs. moderately positive vs. less positive) were created for each of the six characters by trichotomizing participants' responses on A_{CHAR} (Table 6.18.1). To test the interaction effect, paired brands with particular characters were examined. Three brands were paired with each character, and the aggregated amount of interactions was used for analysis.

First, a series of two-way ANOVA was performed on A_{CHAR} of each character to examine the $A_{\text{PROG}} \times A_{\text{CHAR}}$ interaction effect on the amount of interactions. Earlier results of hypotheses showed that attitude toward the program and toward five of six characters were positively related with the amount of interactions (Hypotheses 6 and 8). Table 6.18.2 shows the interactions effect for Chandler, and a significant result was found.

The results show that the amount of interactions increases as the attitude toward the character improves. Generally, the amount of interactions is greater when A_{PROG} is less positive. However, the result shows that when the level of A_{CHAR} is moderate, participants with more positive A_{PROG} demonstrated greater amount of interactions. A post hoc test revealed that in both A_{PROG} conditions, participants with highly positive attitude toward Chandler (A_{CHAR}) showed more amount of interactions than those with moderately positive and less positive A_{CHAR} .

Table 6.18.1. Attitude toward the Character: Creating Conditions

Character	Attitude Scores		Conditioning Criteria	N
	Mean	Median		
Chandler	5.7780	6.00	Highly Positive $M > 6.4$	97
			Moderately Positive	99
			Less Positive $M < 5.4$	93
Joey	5.9856	6.40	Highly Positive $M > 6.6$	104
			Moderately Positive	79
			Less Positive $M < 5.8$	106
Monica	5.8047	6.00	Highly Positive $M > 6.4$	99
			Moderately Positive	85
			Less Positive $M < 5.4$	104
Phoebe	5.5356	5.80	Highly Positive $M > 6.2$	97
			Moderately Positive	90
			Less Positive $M < 5.2$	102
Rachel	6.3453	6.60	Highly Positive $M > 6.8$	105
			Moderately Positive	78
			Less Positive $M < 6.2$	106
Ross	5.6287	6.00	Highly Positive $M > 6.2$	106
			Moderately Positive	80
			Less Positive $M < 5.2$	103
All Characters	5.8464	6.00	Highly Positive $M > 6.30$	90
			Moderately Positive	107
			Less Positive $M < 5.54$	92

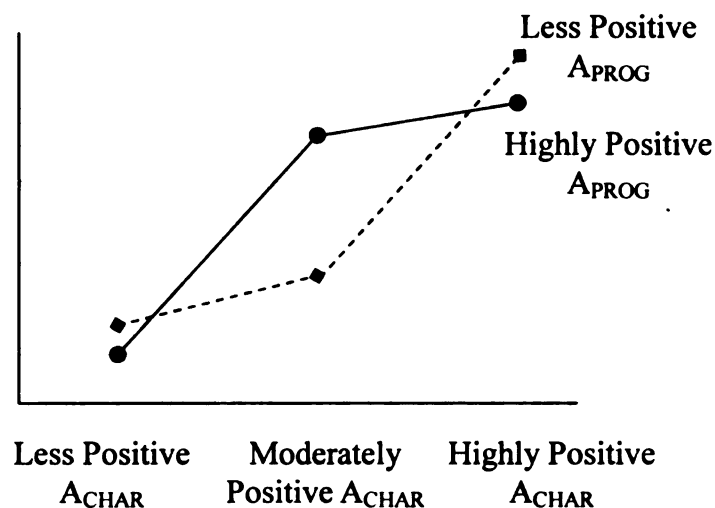
Table 6.18.2. Interactions Effects: $A_{PROG} \times A_{CHAR}$: Chandler

Dependent Variable: Amount of Interactions

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	4.3077	3.6382	52
	Moderately Positive A _{CHAR}	4.2286	3.5817	35
	Less Positive A _{CHAR}	2.2857	2.2336	14
Less Positive A _{PROG}	Highly Positive A _{CHAR}	4.9130	2.3532	23
	Moderately Positive A _{CHAR}	2.5217	2.4096	23
	Less Positive A _{CHAR}	2.3273	2.8025	55

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	12.971	1.332	.266
Attitude toward the Character	2	155.745	15.989	.000
Program Attitude × Character Attitude	4	28.505	2.926	.021
Error	280	.340		

Figure 6.18.1. Interactions Effects: $A_{PROG} \times A_{CHAR}$: Chandler



Attitudes toward Rachel and Ross were also found to have a significant interaction effect. Specifically, the pattern of interaction effect of Rachel was identical to that of Chandler. However, the pattern for Ross was found to be different. The amount of interactions was found to be decreasing as A_{CHAR} improves from less positive to moderately positive. However, the main effects of A_{PROG} and A_{CHAR} were found to be non-significant in the case of Ross.

A post hoc test for Rachel's case indicated that in both A_{PROG} conditions, participants with highly positive attitude toward Rachel (A_{CHAR}) showed more interactions than those with moderately positive and less positive A_{CHAR} . For Ross, the difference in the amount of interactions between highly positive A_{CHAR} and less positive A_{CHAR} was found to be significant in a post hoc test. Tables 6.18.3 and 6.18.4 and Figures 6.18.2 and 6.18.3 show the corresponding results.

Table 6.18.3. Interactions Effects: $A_{PROG} \times A_{CHAR}$: Rachel

Dependent Variable: Amount of Interactions

Independent Variables		Mean	Std. Deviation	N
Highly Positive A_{PROG}	Highly Positive A_{CHAR}	4.5690	3.5100	58
	Moderately Positive A_{CHAR}	4.2963	3.5281	27
	Less Positive A_{CHAR}	1.4375	2.1899	16
Less Positive A_{PROG}	Highly Positive A_{CHAR}	5.6111	2.7470	18
	Moderately Positive A_{CHAR}	2.6250	2.6344	24
	Less Positive A_{CHAR}	2.2881	2.4357	59

Independent Variables	df	Mean Square	F	P
Attitude toward the Program	2	2.250	.244	.784
Attitude toward the Character	2	236.809	25.684	.000
Program Attitude $\times$ Character Attitude	4	25.545	2.771	.028
Error	280	9.220		

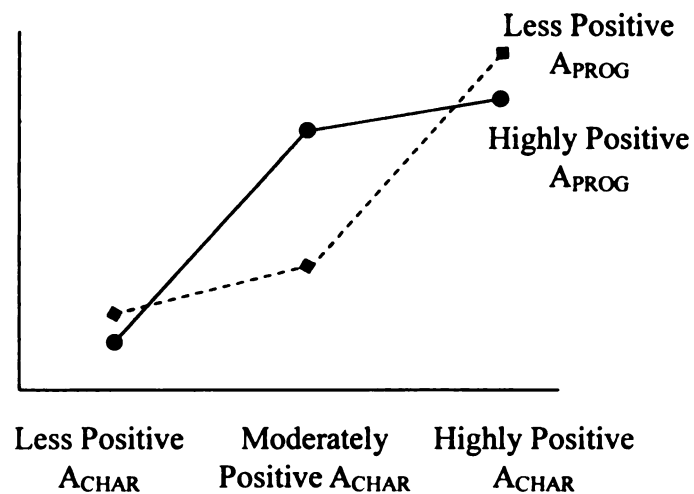
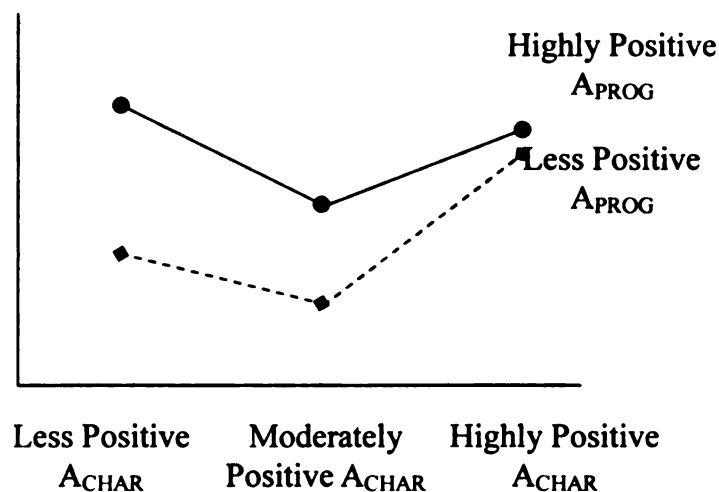
Figure 6.18.2. Interactions Effects: $A_{PROG} \times A_{CHAR}$: Rachel

Table 6.18.4. Interactions Effects: A_{PROG} × A_{CHAR}: Ross

Dependent Variable: Amount of Interactions

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	4.0000	3.8957	52
	Moderately Positive A _{CHAR}	3.7333	2.9587	30
	Less Positive A _{CHAR}	4.4211	3.2543	19
Less Positive A _{PROG}	Highly Positive A _{CHAR}	3.8261	2.6398	23
	Moderately Positive A _{CHAR}	2.4783	2.8102	23
	Less Positive A _{CHAR}	2.8000	2.8441	55

Independent Variables		df	Mean Square	F	p
Attitude toward the Program		2	23.490	2.229	.110
Attitude toward the Character		2	18.833	1.787	.169
Program Attitude × Character Attitude		4	27.009	2.563	.039
Error		280	10.537		

Figure 6.18.3. Interactions Effects: A_{PROG} × A_{CHAR}: Ross

Attitudes toward the remaining three characters (i.e., Joey, Monica, and Phoebe) were also examined. However, no significant interaction effects were found in relation to the attitude toward the program. Tables 6.18.5, 6.18.6, and 6.18.7 show the results.

Table 6.18.5. Interactions Effects: A_{PROG} × A_{CHAR}: Joey

Dependent Variable: Amount of Interactions

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	4.0615	3.5350	65
	Moderately Positive A _{CHAR}	3.8929	3.3592	28
	Less Positive A _{CHAR}	3.8750	4.1209	8
Less Positive A _{PROG}	Highly Positive A _{CHAR}	3.0000	2.5820	7
	Moderately Positive A _{CHAR}	2.6667	2.4976	15
	Less Positive A _{CHAR}	3.0127	2.9066	79

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	13.694	1.247	.289
Attitude toward the Character	2	3.693	.336	.715
Program Attitude × Character Attitude	4	2.348	.214	.931
Error	280	.340		

Table 6.18.6. Interactions Effects: A_{PROG} × A_{CHAR}: Monica

Dependent Variable: Amount of Interactions

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	4.2453	3.7360	53
	Moderately Positive A _{CHAR}	4.0556	3.3205	36
	Less Positive A _{CHAR}	2.7500	2.8644	12
Less Positive A _{PROG}	Highly Positive A _{CHAR}	4.0000	2.8868	19
	Moderately Positive A _{CHAR}	3.7059	3.2358	17
	Less Positive A _{CHAR}	2.4615	2.5744	65

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	2.497	.238	.788
Attitude toward the Character	2	71.220	6.788	.001
Program Attitude × Character Attitude	4	3.311	.316	.867
Error	280	10.491		

Table 6.18.7. Interactions Effects: $A_{\text{PROG}} \times A_{\text{CHAR}}$: Phoebe

Dependent Variable: Amount of Interactions

Independent Variables		Mean	Std. Deviation	N
Highly Positive A_{PROG}	Highly Positive A_{CHAR}	3.8246	3.2685	57
	Moderately Positive A_{CHAR}	4.6452	3.9034	31
	Less Positive A_{CHAR}	3.2308	3.2918	13
Less Positive A_{PROG}	Highly Positive A_{CHAR}	3.6364	2.8026	11
	Moderately Positive A_{CHAR}	3.4000	2.8357	30
	Less Positive A_{CHAR}	2.6167	2.7867	60

Independent Variables		df	Mean Square	F	p
Attitude toward the Program		2	8.597	.791	.455
Attitude toward the Character		2	16.765	1.542	.216
Program Attitude $\times$ Character Attitude		4	5.093	.468	.759
Error		280	10.874		

Similarly, the interaction effects of $A_{\text{PROG}} \times A_{\text{CHAR}}$ on the changes in attitude toward paired brands were tested on each character. Earlier results from testing hypotheses showed that attitude toward the program and toward five of six characters were positively related with the changes in attitude toward paired brands (Hypotheses 7 and 10). To test the interaction effects, the mean scores of attitude toward the paired brands were used for analysis.

Another series of ANOVA was performed. However, significant interaction effects were not found from any of the six characters. Tables 6.18.8 to 6.18.13 show the results from the tests.

Table 6.18.8. Interactions Effects: A_{PROG} × A_{CHAR}: Chandler

Dependent Variable: Changes in Attitude toward Brands Paired with Chandler

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	.1872	.4385	52
	Moderately Positive A _{CHAR}	.3513	.3904	35
	Less Positive A _{CHAR}	-.1323	.4676	14
Less Positive A _{PROG}	Highly Positive A _{CHAR}	.3427	.6055	23
	Moderately Positive A _{CHAR}	.3070	.5283	23
	Less Positive A _{CHAR}	.0347	.5067	55

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	.192	.950	.388
Attitude toward the Character	2	2.016	9.976	.000
Program Attitude × Character Attitude	4	.212	1.048	.383
Error	280	.202		

Table 6.18.9. Interactions Effects: A_{PROG} × A_{CHAR}: Joey

Dependent Variable: Changes in Attitude toward Brands Paired with Joey

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	.1936	.4586	65
	Moderately Positive A _{CHAR}	.2288	.4630	28
	Less Positive A _{CHAR}	.1481	.3564	8
Less Positive A _{PROG}	Highly Positive A _{CHAR}	.4921	.7631	7
	Moderately Positive A _{CHAR}	.1510	.6084	15
	Less Positive A _{CHAR}	.1411	.5154	79

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	.060	.280	.756
Attitude toward the Character	2	.529	2.471	.086
Program Attitude × Character Attitude	4	.185	.864	.486
Error	280	.214		

Table 6.18.10. Interactions Effects: A_{PROG} × A_{CHAR}: Monica

Dependent Variable: Changes in Attitude toward Brands Paired with Monica

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	.1704	.4864	53
	Moderately Positive A _{CHAR}	.3080	.3695	36
	Less Positive A _{CHAR}	.0046	.4450	12
Less Positive A _{PROG}	Highly Positive A _{CHAR}	.1795	.6683	19
	Moderately Positive A _{CHAR}	.4541	.5002	17
	Less Positive A _{CHAR}	.0881	.5053	65

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	.120	.576	.563
Attitude toward the Character	2	1.404	6.735	.001
Program Attitude × Character Attitude	4	.103	.493	.741
Error	280	.208		

Table 6.18.11. Interactions Effects: A_{PROG} × A_{CHAR}: Phoebe

Dependent Variable: Changes in Attitude toward Brands Paired with Phoebe

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	.1850	.4635	57
	Moderately Positive A _{CHAR}	.3286	.3919	31
	Less Positive A _{CHAR}	.0429	.4336	13
Less Positive A _{PROG}	Highly Positive A _{CHAR}	.0168	.5528	11
	Moderately Positive A _{CHAR}	.2555	.7301	30
	Less Positive A _{CHAR}	.1501	.4353	60

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	.137	.644	.526
Attitude toward the Character	2	.900	4.242	.015
Program Attitude × Character Attitude	4	.197	.926	.449
Error	280	.212		

Table 6.18.12. Interactions Effects: A_{PROG} × A_{CHAR}: Rachel

Dependent Variable: Changes in Attitude toward Brands Paired with Rachel

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	.1702	.4481	58
	Moderately Positive A _{CHAR}	.3384	.4438	27
	Less Positive A _{CHAR}	.0730	.4314	16
Less Positive A _{PROG}	Highly Positive A _{CHAR}	.3090	.5330	18
	Moderately Positive A _{CHAR}	.4158	.5286	24
	Less Positive A _{CHAR}	.0223	.5228	59

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	.059	.293	.746
Attitude toward the Character	2	1.598	7.879	.000
Program Attitude × Character Attitude	4	.194	.955	.433
Error	280	.203		

Table 6.18.13. Interactions Effects: A_{PROG} × A_{CHAR}: Ross

Dependent Variable: Changes in Attitude toward Brands Paired with Ross

Independent Variables		Mean	Std. Deviation	N
Highly Positive A _{PROG}	Highly Positive A _{CHAR}	.1850	.4919	52
	Moderately Positive A _{CHAR}	.2938	.3923	30
	Less Positive A _{CHAR}	.0916	.4001	19
Less Positive A _{PROG}	Highly Positive A _{CHAR}	.1655	.6390	23
	Moderately Positive A _{CHAR}	.3820	.3758	23
	Less Positive A _{CHAR}	.0775	.5544	55

Independent Variables	df	Mean Square	F	p
Attitude toward the Program	2	.017	.082	.922
Attitude toward the Character	2	.865	4.113	.017
Program Attitude × Character Attitude	4	.170	.810	.520
Error	280	.210		

6.19. The Interaction Effects of Product Involvement and Attitude toward Characters on Interactions and Attitude toward Brands (Study 5)

In testing the product involvement $\times$ attitude toward characters interaction effect, paired brands were used in mixed analysis of variance (ANOVA). To do this, the amount of interactions and attitude toward particular product categories had to be calculated based on the product involvement. Six product categories were used for paired brands, and they were clothes (12 brands), beverages (2 brands), inexpensive electronic goods (telephone, 1 brand), tableware (1 brand), kitchenware (1 brand), and food (dessert, 1 brand).

Among these categories, clothes ($M = 6.14$) were used for high involvement products, and kitchenware ($M = 4.37$), tableware ($M = 4.18$), and food ($M = 3.85$) were used for low involvement products. Inexpensive electronic goods and beverages, which were found to show moderate level of product involvement, were discarded from the analysis. The high involvement product category had 12 brands, and the low involvement category had three brands.

To ease the comparison, the amount of interactions per brand was calculated for high and low involvement products. Finally, a series of mixed ANOVA was conducted to test the product involvement $\times$ attitude toward characters interactions effect on the amount of interactions. Tables 6.19.1 to 6.19.6 show the results for each character. No interaction effects were found on the amount of interaction.

Table 6.19.1. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Chandler

Dependent Variable: Amount of Interactions with Paired Items with Chandler

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.239	.201	97
	Less Positive A _{CHAR}	.134	.169	93
Low Involvement Products	Highly Positive A _{CHAR}	.247	.364	97
	Less Positive A _{CHAR}	.140	.227	93

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.01	.11	.738
Attitude toward Character (Between-Subjects)	1	1.08	13.33	.000
Product $\times$ Program Involvement	1	.00	.00	.958
Error	188	.05		

Table 6.19.2. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Joey

Dependent Variable: Amount of Interactions with Paired Items with Joey

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.220	.205	104
	Less Positive A _{CHAR}	.138	.171	106
Low Involvement Products	Highly Positive A _{CHAR}	.221	.370	104
	Less Positive A _{CHAR}	.223	.324	106

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.20	3.59	.059
Attitude toward Character (Between-Subjects)	1	.16	1.61	.206
Product $\times$ Program Involvement	1	.18	3.33	.069
Error	208	.05		

Table 6.19.3. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Monica

Dependent Variable: Amount of Interactions with Paired Items with Monica

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.231	.216	99
	Less Positive A _{CHAR}	.119	.142	104
Low Involvement Products	Highly Positive A _{CHAR}	.259	.377	99
	Less Positive A _{CHAR}	.154	.245	104

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.10	2.06	.153
Attitude toward Character (Between-Subjects)	1	1.21	14.35	.000
Product $\times$ Program Involvement	1	.00	.03	.865
Error	201	.05		

Table 6.19.4. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Phoebe

Dependent Variable: Amount of Interactions with Paired Items with Phoebe

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.214	.187	97
	Less Positive A _{CHAR}	.142	.180	102
Low Involvement Products	Highly Positive A _{CHAR}	.216	.333	97
	Less Positive A _{CHAR}	.180	.310	102

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.04	.83	.362
Attitude toward Character (Between-Subjects)	1	.29	3.29	.071
Product $\times$ Program Involvement	1	.03	.63	.427
Error	197	.05		

Table 6.19.5. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Rachel

Dependent Variable: Amount of Interactions with Paired Items with Rachel

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.295	.201	105
	Less Positive A _{CHAR}	.097	.135	106
Low Involvement Products	Highly Positive A _{CHAR}	.270	.379	105
	Less Positive A _{CHAR}	.138	.260	106

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.01	.14	.705
Attitude toward Character (Between-Subjects)	1	2.87	33.41	.000
Product $\times$ Program Involvement	1	.12	2.44	.120
Error	209	.05		

Table 6.19.6. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Ross

Dependent Variable: Amount of Interactions with Paired Items with Ross

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.202	.184	106
	Less Positive A _{CHAR}	.146	.184	103
Low Involvement Products	Highly Positive A _{CHAR}	.217	.353	106
	Less Positive A _{CHAR}	.191	.297	103

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	.09	1.83	.178
Attitude toward Character (Between-Subjects)	1	.17	1.93	.166
Product $\times$ Program Involvement	1	.02	.45	.502
Error	207	.05		

Table 6.19.7. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Chandler

Dependent Variable: Changes in Attitude toward Brands Paired with Chandler

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.294	.534	97
	Less Positive A _{CHAR}	.040	.516	93
Low Involvement Products	Highly Positive A _{CHAR}	-.073	.696	97
	Less Positive A _{CHAR}	-.087	.917	93

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	5.79	17.07	.000
Attitude toward Character (Between-Subjects)	1	1.70	2.85	.093
Product $\times$ Program Involvement	1	1.37	4.03	.046
Error	207	.34		

Table 6.19.8. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Ross

Dependent Variable: Changes in Attitude toward Brands Paired with Ross

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.292	.553	106
	Less Positive A _{CHAR}	.118	.559	103
Low Involvement Products	Highly Positive A _{CHAR}	-.126	.634	106
	Less Positive A _{CHAR}	-.038	.908	103

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	8.64	25.67	.000
Attitude toward Character (Between-Subjects)	1	.19	.33	.565
Product $\times$ Program Involvement	1	1.79	5.33	.022
Error	207	.34		

Figure 6.19.1. Interactions Effects: Product Involvement $\times$ A_{CHAR} : Chandler

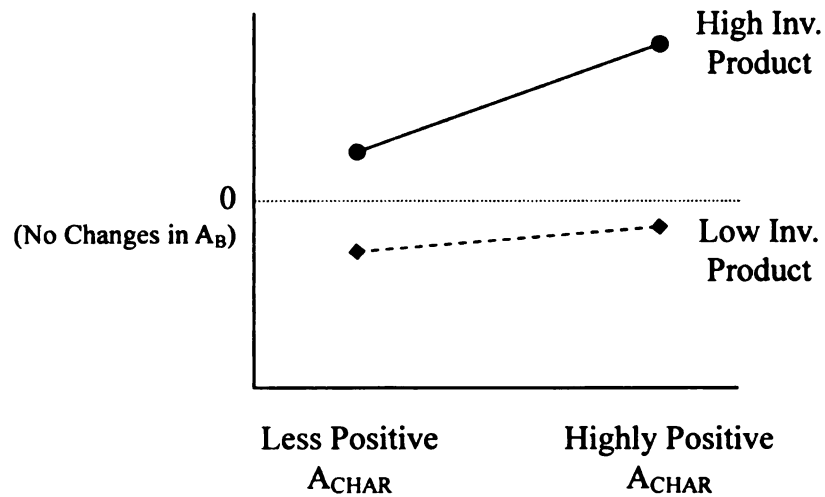
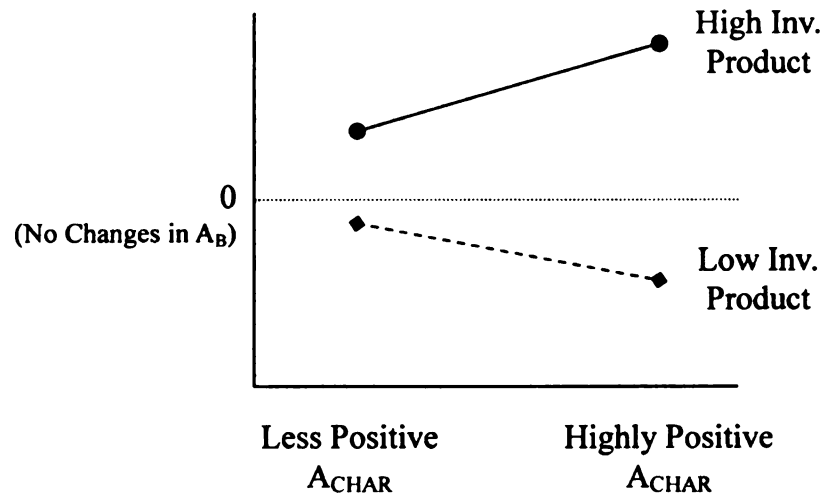


Figure 6.19.2. Interactions Effects: Product Involvement $\times$ A_{CHAR} : Ross



Next, another series of mixed ANOVA was conducted to test the product involvement $\times$ attitude toward characters interactions effect on the changes in the attitude toward paired brands. Attitudes toward only two characters (i.e., Chandler and Ross)

were found to have a significant interaction effect. Above Tables 6.19.7 and 6.19.8 and Figures 6.19.1 and 6.19.2 show the results.

The above results indicate that the interaction effect was only marginally significant with attitude toward Chandler ($p = .046$). Nevertheless, the main effect of product involvement with both characters was found to be significant, and it showed that the changes in attitude toward paired brands of low involvement products were negative (which means the attitude declined by being exposed to the stimulus). The relationship between product involvement and the changes in attitude toward brands was not examined in hypotheses tests.

Furthermore, the main effects of attitude toward characters were not found to be significant. Consequently, the above results would only be interpreted that for certain characters the A_{CHAR} had a stronger impact on the changes in A_B for high involvement products than low involvement products. Supporting this interpretation, no significant interaction effects were found in relation to the attitude toward the remaining four characters (i.e., Joey, Monica, Phoebe, and Rachel). The results for the remaining four characters are illustrated in Tables 6.19.9 to 6.19.12. Although significant interaction effects were found from two characters (i.e., Chandler and Ross), it is difficult to conclude that the significant results are truly meaningful because (1) the significant relationships were found from only two characters among the six, (2) the significant relationships were only marginally significant ($p = .22; .46$), and (3) the patterns of significant interaction effects did not correspond to each other. Therefore, the significant results from the Product Involvement $\times A_{CHAR}$ interaction effects would be hard to generalize.

Table 6.19.9. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Joey

Dependent Variable: Changes in Attitude toward Brands Paired with Joey

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.317	.538	104
	Less Positive A _{CHAR}	.158	.538	106
Low Involvement Products	Highly Positive A _{CHAR}	-.021	.748	106
	Less Positive A _{CHAR}	-.010	.863	103

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	6.72	19.19	.000
Attitude toward Character (Between-Subjects)	1	.58	.99	.322
Product $\times$ Program Involvement	1	.76	2.16	.143
Error	208	.35		

Table 6.19.10. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Monica

Dependent Variable: Changes in Attitude toward Brands Paired with Monica

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.264	.539	99
	Less Positive A _{CHAR}	.098	.524	104
Low Involvement Products	Highly Positive A _{CHAR}	-.090	.808	99
	Less Positive A _{CHAR}	-.066	.775	104

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	6.79	20.59	.000
Attitude toward Character (Between-Subjects)	1	.51	.88	.350
Product $\times$ Program Involvement	1	.92	2.80	.096
Error	201	.33		

Table 6.19.11. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Phoebe

Dependent Variable: Changes in Attitude toward Brands Paired with Phoebe

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.259	.517	97
	Less Positive A _{CHAR}	.154	.455	102
Low Involvement Products	Highly Positive A _{CHAR}	-.139	.642	97
	Less Positive A _{CHAR}	-.098	.831	102

Independent Variables	df	Mean Square	F	p
Product Involvement (Within-Subjects)	1	10.49	33.41	.000
Attitude toward Character (Between-Subjects)	1	.10	.21	.644
Product $\times$ Program Involvement	1	1.79	.53	.194
Error	197	.31		

Table 6.19.12. Interactions Effects: Product Involvement $\times$ A_{CHAR}: Rachel

Dependent Variable: Changes in Attitude toward Brands Paired with Rachel

Independent Variables		Mean	Std. Deviation	N
High Involvement Products	Highly Positive A _{CHAR}	.310	.481	105
	Less Positive A _{CHAR}	.061	.552	106
Low Involvement Products	Highly Positive A _{CHAR}	-.072	.678	105
	Less Positive A _{CHAR}	-.154	.755	106

Independent Variables	df	Mean Square	F	P
Product Involvement (Within-Subjects)	1	9.36	30.75	.000
Attitude toward Character (Between-Subjects)	1	2.88	6.00	.015
Product $\times$ Program Involvement	1	.74	2.42	.121
Error	209	.30		

So far, this chapter tested the hypotheses using different approaches. Some relationships were examined on background products and some on paired brands. Some excluded the responses from those who did not make any interactions and some included all participants. Table 6.19.13 summarizes the approaches and methods used in the analyses thus far, and presents the results.

Table 6.19.13. Summary of the Results

H ¹	IV	DV	Items ²	Participants	Method	Result	Table
1	Product Inv.	Interactions	Background	All	Regression	Supported	6.4.2
2	Product Inv.	Recall	Background	All	Regression	Supported	6.5.2
3	Program Inv.	Interactions	Background	All	Hotelling's T ²	Rejected	6.6
4	Program Inv.	Recall	Background	All	Hotelling's T ²	Rejected	6.6
5	A _{PROG}	Recall	Background	All	Regression	Rejected	6.5.2
6	A _{PROG}	Interactions	Background	All	Regression	Rejected	6.7
7	A _{PROG}	Changes in A _B	All ³	All	Regression	Supported	6.8.3
8	A _{CHAR}	Interactions	Paired	Interacted	Regression	P. Supported ⁴	6.9.2
9	A _{CHAR}	Recall	Paired ³	Interacted	Regression	Rejected	6.9.4
10	A _{CHAR}	Changes in A _B	Paired	Interacted	Regression	P. Supported ⁴	6.10.2
11	Gender	Interactions	Background	All	T-test	Rejected	6.11
12	Interactions	Recall	All	All	Regression	Supported	6.12
13	Interactions	Product Inv.	All	All	Regression	P. Supported ⁴	6.13.2
14	Interactions	Program Inv.	All	All	Regression	Supported	6.14.2

¹ Hypothesis number

² Products or brands used for analysis

³ Only interacted brands were examined.

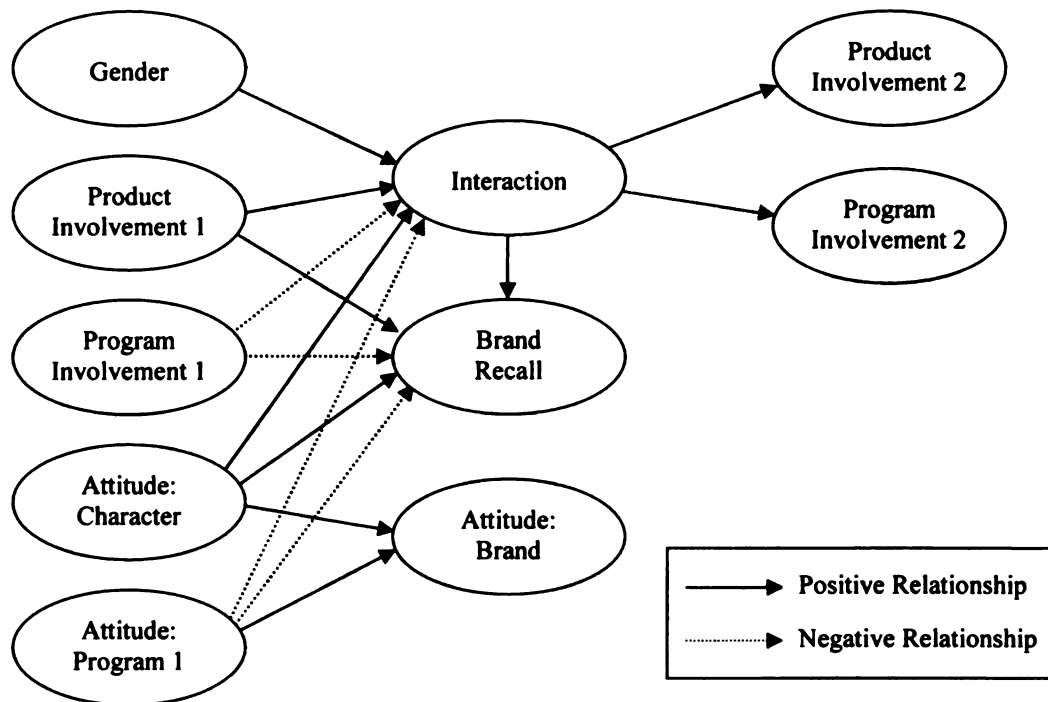
⁴ Partially supported.

6.20. Test of the Hypothetical Model and Structural Relations

The overall relationships among the variables were tested by a structural equation model (SEM). Bollen (1989) suggested that SEM provides a better description of the structure of constructs because it simultaneously tests the relationships among the constructs and it shows how existing relationships may change and additional relationships may emerge. In testing the hypotheses, the manipulation of the participant's

involvement with the program failed, and the variable was trichotomized. As a result, only 289 out of 396 participants were available for subsequent analyses. However, for SEM analysis those conditions were collapsed, and the level of involvement with the program was used as a continuous variable so that all 396 participants would be available for inclusion in the testing. The hypothesized relationships are presented in a model in Figure 6.20.1.

Figure 6.20.1. Hypothesized Model



It should be noted that while testing hypotheses different criteria were employed in choosing brands and products for dependent variables. That is, only background brands

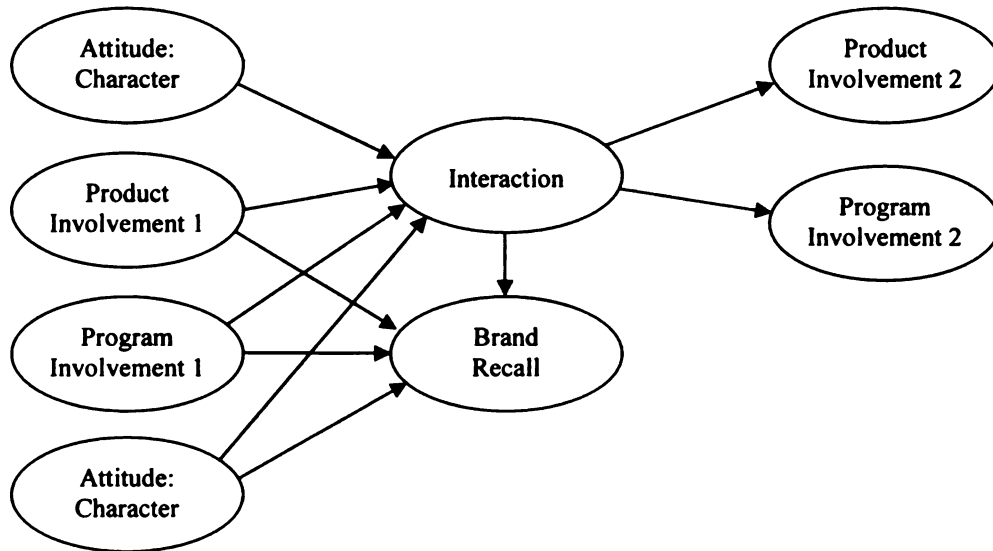
were analyzed in testing certain hypotheses and paired brands were used for the others. Sometimes, participants who did not make any interactions were removed from the analysis, and sometimes only interacted brands were used. It is not feasible to conduct an SEM analysis and examine the overall relationship of the variables when the variables have different characteristics. Therefore, in an attempt to integrate these different aspects of variable relationships, the SEM analysis focused on only one paired brand from each character.

Each character was paired with three brands – two articles of clothing and one other product. A brand (or an item) for analysis was selected so that the product category of that item would not be paired with any other characters. In other words, the brand to be used for SEM should be the only item in the product category. If another character is paired with an item of the same category, it means the “Product Involvement Measure 1 → Amount of Interactions → Product Involvement Measure 2” relationship might be breached. For example, if a participant did not interact with the item paired with the character in question but instead interacted with the other item (under the same category) paired with another character, (s)he might still demonstrate increased level of interactions or product involvement, while this increase would not be explained by the model because the participant’s amount of interaction would not represent the interaction made with the other item.

Only three brands met the criterion described above (i.e., single item in a product category), and they were kitchenware (paired with Monica), low-priced appliance (with Joey), and dessert (with Phoebe). Consequently, three separate analyses were conducted. The relationships that were rejected in the hypotheses test were not examined in the SEM

analysis. Multiple-group analysis could not be conducted because the participants saw all three characters and brands (and thus cannot be divided into different groups). Figure 6.20.2 illustrates the tested model.

Figure 6.20.2. Tested Model



Several differences are identified. First, all relationships are expected to be positive based on the initial findings. Second, gender was removed from the model. Such relationships as “Attitude toward the Program → Recalls” and “Attitude toward the Character → Recall” were also removed as they were rejected in hypothesis tests. On the other hand, relationships between “Product Involvement → Interactions and Recall,” “Attitude toward the Character → Interactions,” and “Interactions → Product Involvement” were examined in the model because they were only partially supported/rejected from the previous tests. Finally, Attitude toward the Brand was

removed from the model. Testing the impacts of A_{CHAR} and A_{PROG} on the changes in A_B employed responses only from interacted participants because it was not reasonable to expect affect transfer to occur from those who could not see any brand information. The proposed SEM analysis would employ both interacted and non-interacted participants, and any changes in attitude toward the brand among those non-clicked participants would not be explained by the model. Since it would pose a threat to the model's overall validity, the relationships regarding Attitude toward the Brand variable were not examined. As a result, the tested model focused on the antecedents and consequences of audience interactions with the ad.

6.21. SEM: Results

AMOS 4.0 was used to examine the model (Figure 6.20.2). This model did not include the relationship between attitude toward the character and the amount of interactions because the relationship was rejected from the earlier hypothesis test (see Table 6.9.2).

Tables 6.21.1, 6.21.2, and 6.21.3 show the initial results from analyzing the model for Joey's low-priced appliance, Monica's kitchenware, and Phoebe's dessert, respectively. Only a few number of coefficients were found to be statistically significant. In particular, the model for Joey's low-priced appliance showed no significant relationships (Table 6.21.1), the model for Monica's kitchenware showed only three significant relationships (Table 6.21.2), and the model for Phoebe's dessert showed only two significant relationships (Table 6.21.3).

Furthermore, the goodness-of-fit indices indicated poor fit of the overall models with the GFIs ranging from .735 to .809. The modification indices in AMOS were examined to seek further improvements of the models. It was found that the suggested changes from the modification indices were not consistent for the models for the three characters. Therefore, it was concluded that there were no results that could be generalized.

Table 6.21.1. Initial Result: InexpensiveAppliance / Joey

IVs	DVs	Unstd. Coeff.	S.E.	Std. Coeff.	p
Program Involvement 1	Interactions	.007	.014	.026	.608
Product Involvement 1	Interactions	.030	.017	.093	.079
Attitude-Program	Interactions	-.017	.020	-.044	.392
Interactions	Program Involvement 2	.106	.080	.030	.185
Interactions	Product Involvement 2	.016	.118	.005	.893
Good-of-fit Indices					
χ^2		1511.303	(N=396, df=288)		
p		.000			
Joreskog-Sorbom Goodness of Fit Index (GFI)		.809			
Adjusted Goodness of Fit Index (AGFI)		.767			
Bentler-Bonett Normed Fit Index (NFI)		.858			
Tucker-Lewis Index (TLI)		.867			
Incremental Fit Index (IFI)		.882			
Comparative Fit Index (CFI)		.882			
Root Mean Square Error of Approximation (RMSEA)		.104			

Table 6.21.2. Initial Result: Kitchenware / Monica

IVs	DVs	Unstd. Coeff.	S.E.	Std. Coeff.	p
Program Involvement 1	Interactions	-.008	.015	-.026	.608
Product Involvement 1	Interactions	.065	.020	.173	.002
Attitude-Program	Interactions	.041	.021	.098	.048
Attitude-Character	Interactions	.080	.024	.173	.001
Interactions	Program Involvement 2	-.122	.072	-.038	.092
Interactions	Product Involvement 2	.211	.114	.075	.063
Good-of-fit Indices					
χ^2		2123.949	(N=396, df=427)		
p		.000			
Joreskog-Sorbom Goodness of Fit Index (GFI)		.735			
Adjusted Goodness of Fit Index (AGFI)		.692			
Bentler-Bonett Normed Fit Index (NFI)		.823			
Tucker-Lewis Index (TLI)		.840			
Incremental Fit Index (IFI)		.854			
Comparative Fit Index (CFI)		.853			
Root Mean Square Error of Approximation (RMSEA)		.100			

Table 6.21.3. Initial Result: Dessert / Phoebe

IVs	DVs	Unstd. Coeff.	S.E.	Std. Coeff.	p
Program Involvement 1	Interactions	-.017	.018	-.047	.352
Product Involvement 1	Interactions	.065	.019	.177	.001
Attitude-Program	Interactions	.017	.025	.034	.501
Attitude-Character	Interactions	.001	.027	.002	.964
Interactions	Recalls	.308	.019	.632	.000
Interactions	Program Involvement 2	.021	.062	.008	.729
Interactions	Product Involvement 2	.146	.090	.049	.106
Good-of-fit Indices					
χ^2		2111.692	(N=396, df=457)		
p		.000			
Joreskog-Sorbom Goodness of Fit Index (GFI)		.742			
Adjusted Goodness of Fit Index (AGFI)		.702			
Bentler-Bonett Normed Fit Index (NFI)		.845			
Tucker-Lewis Index (TLI)		.863			
Incremental Fit Index (IFI)		.874			
Comparative Fit Index (CFI)		.874			
Root Mean Square Error of Approximation (RMSEA)		.092			

Chapter 7. Conclusion & Discussion

7.1. The Role of Involvement in Advertising Exposure

The primary purpose of this research was to investigate the effect of involvement on advertising effectiveness. In particular, consumers' levels of involvement with the program and the products in ads were examined in relation to their interactions with the ads. The role of consumer involvement has been studied in a few studies on interactive advertising (e.g., Cho & Leckenby, 1998; Cho & Leckenby, 1999; Ilfeld & Winer, 2002), and they have found that consumers are more likely to interact with an ad that features a product of high involvement. The current research has found a consistent result. Three product categories (i.e., furniture, tableware, and home accessories) were examined, and the participants who felt higher levels of involvement with a product were found to demonstrate more interactions with the product's ad.

The role of a different involvement type—involvement with the program—was also examined. Previous studies have yielded conflicting results regarding the effect of program involvement on advertising effectiveness. Some studies contended that the cognitive capacity of audiences with higher levels of involvement with the program would have fewer resources available to process the ad, and thus the involvement would have a negative impact on advertising effectiveness (e.g., Pavelchak et al., 1988; Soldow & Principe, 1981). On the other hand, others argued that higher levels of involvement engender arousal, which would generate more acute processing of surrounding information (e.g., Singh & Churchill, 1987; Srull, 1983).

The current research posited that, because the iPPLs in the interactive television (ITV) interface appear *during* the program, higher levels of program involvement would inhibit the program's audience from interacting with the embedded ads. However, the result (Table 6.6) showed that the amount of interactions were greater for those with higher program involvement. Therefore, the aforementioned arousal approach (e.g., Singh & Churchill, 1987; Srull, 1983) was found to be more valid in the case of iPPL in ITV. That is, when a consumer feels more involved with the program, (s)he would concentrate more on the program and experience higher levels of arousal. Explaining the role of flow in online audience behavior, Novak et al. (2000) showed that increased arousal generated heightened attention, which eventually led to the increased exploratory behavior of the web users. In other words, the audience's high program involvement could produce more attention to the program and to its surrounding information, and it might have generated more interactions.

This does not necessarily mean that the hypothesized negative relationship (between program involvement and interactions) would always be invalid. The basics of the "limited cognitive capacity" rationale employed in the Hypothesis 3 and Hypothesis 4 are believed to be valid. For example, when a consumer is extremely involved with the program (i.e., at certain points during the program), the consumer would not be able to divert his/her attention to surrounding information. But when the program does not require the complete attention of the audience, the higher levels of the involvement with the program could increase the audience's levels of interest in the program's adjacent information as well, which will make the audience pay more attention to the information. It should be noted that the current research used a situational comedy (or a sitcom) for the

experiment. Unlike some movies, television programs are not asking their audience to pay full attention from the beginning to the end. There are commercial breaks, and television programs are usually produced in a series.

This suggests several interesting implications. First, particular points or plots during the program might show a positive or negative relationship between program involvement and the amount of interactions. As described earlier, the audience might not have enough cognitive capacity to pay attention to the program's atmospheric stimuli. The particular points of the program might be different times during the program (e.g., beginning, middle, end) or different points of the audience's interest during the program (e.g., scenes of vapid moment vs. tense moments). Second, it can be speculated that the audience did not have to divide processing capacity in this research because the program was paused while participants interacted with iPPLs. In other words, participants could interact with the ads without missing much of the storyline. Finally, considering that a movie is produced for a captive audience who is expected to stay in a theater and pay full attention throughout its duration, the negative relationship between program involvement and the interactions might be found better in movie reruns or movies made for television compared to ordinary television programs.

7.2. The Role of Attitude in Advertising Effectiveness

This research examined two different types of attitudes—attitude toward the program (A_{PROG}) and attitude toward the character (A_{CHAR})—in relation to the amount of interaction and brands recalled. Consumers' positive attitude toward the program was expected to decrease the amount of interactions because the iPPL would compete directly

with the program's content for the audience's attention. The rationale of this expectation is as follows. Exposures to commercials in conventional television are rather mandatory unlike the ads in print media. Previous studies (e.g., De Pelsmacker et al., 2002; Norris & Colman, 1992) recognized that this skippable nature of advertising exposure (i.e., ad exposure is not mandatory) reduces advertising effectiveness. Because the consumers were exposed to the iPPLs placed in ITV on a voluntary basis, it was hypothesized that the positive attitude toward the program would demonstrate similar effects as high program involvement, and thus the positive attitude would negatively affect the amount of interactions. The results found in the current research showed that the relationship was in fact positive. That is, when the audience had a positive attitude toward the program, the audience paid more attention to the program, which could have resulted in increased interactions. Although the result was statistically significant, it should be noted that the effect size was relatively small ($\text{Adjusted } R^2 = .027$, Table 6.7), meaning that the relationship is very weak at best.

On the contrary, the attitude toward the program was found to have a positive relationship with the changes in attitude toward the brand, supporting the affect transfer hypothesis (e.g., Mitchell & Olson, 1981; Shimp, 1981). The impact of the attitude toward the program was found to be much stronger on the changes in attitude toward the brand ($R^2 = .238$) than on the amount of interactions.

Consumers' attitude toward the character in the program was also hypothesized to have a positive influence on the amount of interactions. This relationship was separately examined on the six characters in the program, and significant relationships were found in five characters (excluding Joey). However, it should be noted that even the remaining

one character showed marginally non-significant relationship ($p = .052$). The strength of the significant relationship in the five characters was relatively weak, with the adjusted R^2 ranging from .014 to .218. However, when comparing the effect size of the attitude toward the character on the amount of interactions to that of attitude toward the program on the amount of interactions (Adjusted $R^2 = .027$), it is found that the attitude toward the character is more effective in increasing the audience's interactions with the iPPLs. However, it should be noted that the strength of both attitudes (toward the character and the program) was weak.

Attitude toward the character was also found to have a positive relationship with the changes in attitude toward the brand in most cases. Again, significant relationships were found in only five characters (excluding Phoebe). The strength of the significant relationship in the five characters varied but they were weak. The adjusted R^2 ranged from .023 to .084; see Table 6.10.2. From this, it can be found that the attitude toward the program has a greater impact on the changes in the attitude toward the advertised brand than does the attitude toward the character.

In interpreting the above results, a couple of issues have to be discussed. First, it is not certain what characteristics in a character affect the relationship between the attitude toward a character and the amount of interactions and the changes in attitude toward a brand. As described earlier, the strength of the relationships varied and significant associations were found from only five of the six characters. Because this research employed an existing television program and well-known characters, individual characteristics were not controlled for. This will be discussed again in the following sections.

7.3. The Relationship between Attitude and Involvement

Basically, the level of involvement should not influence the valence of attitudes (Andrews et al., 1990; Chattopadhyay & Nedungadi, 1990). However, involvement is believed to affect or moderate the process by which an attitude is formed or changed (Laczniak & Muehling, 1993). The current research found that these two seemingly different variables, particularly involvement with the program and attitude toward the program, had a similar positive impact on consumers' interactions with embedded iPPLs. Because product involvement also had a positive effect on the consumer's interactions with iPPLs, interaction effects among the three variables were suspected. However, no significant relationships were found (see Table 6.15, 6.16.2, and 6.17.1).

7.4. The Role of Interactions in Program Consumption

A number of studies on advertising effectiveness in online media (e.g., Internet) have focused on the importance of interactivity, which is characterized as an attribute of a medium or consumers. They examined interactivity based on an assumption that the audience favors interactivity and thus the interactive features in a medium are also preferred by the audience. Accordingly, those previous studies have found that interactivity generated positive outcomes in terms of advertising effectiveness. However, the weakness in concentrating on interactivity is that interactive features or perceptions can always change with the introduction of new technologies.

The "positive interactivity" assumption benefited from the advent of the Internet, which is believed to be the first mass medium that embodied full interactivity. Although

the existence of interactive features would be helpful to the audience, it is questionable whether the audience would always find those interactive features desirable. A few studies have pointed out this problem (e.g., Lee & Lee, 1995). Currently, the online audience is taking advantage of interactivity largely because the interactivity helps in achieving their goals (e.g., finding information, etc.). But when the interactivity becomes more common and typical features in other mass media, it is questionable whether the audience would still prefer interactivity. For example, the novelty effect might wear off and the audience's perceptions of interactivity might change. When considering that consumers' perceptions of interactivity might become less favorable and that the "positive interactivity" assumption might be violated, the positive role of interactivity should be reconsidered.

In this regard, this dissertation proposed to use the audience's interactions (as opposed to the features or perceptions of interactivity) as a unit of analysis in examining advertising effectiveness. In particular, the audience's interactions with the embedded ads represented a measure of advertising effectiveness in this dissertation. Moreover, the interactions were used to describe a factor that might affect the audience's media consumption experience. Media consumption experience would include the level of involvement the audience feels with the program or the product featured in the ads. Conventional media consumption experience can be characterized as a passive experience by a passive audience. Therefore, advertising effectiveness in mass media has been commonly measured by memory, attitude, and purchase intention. However, actual interactions made by the audience would be a more accurate measure in ITV environment.

Interactions would measure reach and frequency of the ad with greater accuracy; and, in addition, they would represent voluntary exposure to the advertiser's message.

This voluntary nature of interactions was expected to affect the audience's situational level of involvement with the program. The audience interaction has been studied as a consequence. However, not many studies have examined the variable as an antecedent, and it would be due to the fact that no mass media have possessed the capability to allow the audience to interact with the ads and consume the content of the medium simultaneously. In this sense, investigating the influence of interactions on program-related variables would be unique and critical in the ITV environment because, unlike conventional mass media, ITV is one of the very few media where audience can interact with ads and consume the media content at the same time.

In testing hypotheses, it was found that the audience's involvement could be changed as a result of interactions. In particular, more interactions were found to increase the audience's situational involvement with the program (Table 6.14.2). It means that the interactions made by the audience could actually increase his/her level of involvement with the program, rather than interfering with the audience's understanding of the program and thus decreasing the involvement. However, three issues call for further discussion. First, the nature of the program involvement affected by audience interactions is only *situational*. The current study proposed that interactions would increase the program involvement because the interactions would represent increased attention to the communication process due to practicing active control. However, this increased involvement level (with the program) is situational because the interactions with the embedded ads would not be intrinsic to the program itself.

Second, although it is believed that the interaction would generally increase the audience's involvement, the impact might vary for different types of programs. A sitcom was examined in this research. But it can be argued that certain programs (e.g., game shows, educational programs) might ask the audience to invest more cognitive resources than other programs (e.g., sitcoms, music videos) would do.

Finally, the cyclical process might be also considered. That is, this research has found that the audience's (intrinsic) program involvement increased the amount of interactions, and that the interactions increased the audience's (situational) program involvement. Although the two types of involvement are different from each other (i.e., intrinsic vs. situational), an upward spiral process can be suspected within this involvement-interactions-involvement relationship. If such a spiral process exists, it would resemble online flow experience because flow experience is determined by the audience's level of control (Hoffman & Novak, 1996), and experienced by people who are deeply involved (Lutz & Guiry, 1994) and focuses entirely on the interaction (Novak et al., 2000). Flow in an online navigation has also been described to make the audience intensively concentrated on the navigation activity, which would make the audience highly involved with the navigation activity (Novak et al., 2000).

Unlike program involvement, consumers' involvement with the product was not found to be affected by their interactions with the ads. All eight product categories were examined and significant relationships were found in only three categories (i.e., clothes, furniture, and tableware). Although the relationships were positive, product involvement was found to have decreased in most product categories, and the effect sizes were relatively small. The adjusted R^2 ranged from .011 to .023; see Table 6.13.2. In this

regard, it can be argued that product involvement is not affected by the amount of audience interactions. This may be due to the fact that, compared to involvement with the program, product involvement is closer to the intrinsic involvement that is not easily changed by situational factors.

Finally, no significant difference in the amount of interactions was found between female and male consumers in the current study. It should be noted that the large standard deviation could be responsible in this non-significant result (see Table 6.11), and that female participants actually demonstrated more interactions with the iPPLs than males. This is contrary to what was expected in the Hypothesis 11. Based on previous studies on gender differences in television watching behaviors, it was expected that males would show more interactions than females. Those previous studies examined people's television watching behaviors in general, whereas a particular program was used in this dissertation. Therefore, the findings in the current research can be interpreted that female consumers can be reached as well as male consumers by using iPPLs. However, it should be noted that certain factors regarding program types (e.g., sitcoms, soap operas, game shows, etc.) or product categories employed for the iPPLs could have affected female participants' decision to interact with the ads.

7.5. Limitations and Suggestions for Future Studies

The current research has several limitations. First of all, it should be noted that the research was conducted using a single laboratory experiment on college students. Although there were initially 396 participants, only 289 were examined for most of the analyses in this research and the number of participants was smaller in some analyses. In

order to provide more generalizable results to the advertisers and marketers, this research needs to be replicated on a larger scale with a non-student sample.

Second, the interface of interactive television was presented to the participants on a computer screen instead of a television. This constraint was unavoidable due to the technological limitations. However, considering that operating a computer mouse while watching a computer screen and operating a remote control while watching a television may provide different experience to the audience, the external validity of this research might be somewhat limited.

Third, the stimulus material in this research employed an existing television program, which was already well known to the participants. This was due to the financial constraints in producing a new TV show. Using an existing program caused several problems. For example, its storyline could not be controlled, and thus the appearance order of the iPPLs could not be controlled. The audience's tendency to interact with a certain iPPL might have been affected by the characteristics of the footage in which the iPPL is embedded (e.g., IPPLs might draw less attention when placed in a tense moment). This possible impact could not be examined because of the lack of control over the storyline.

Fourth, the overall involvement and attitude toward the program were very high and favorable (Skewness: Program involvement = $-.812$; Attitude toward the program = -1.559). This is also due to the use of an existing program that was already very popular. In addition, participants' attitude toward characters was also very favorable (Table 6.9.1). However, the favorable attitude toward characters was predicted because the current research had to select a program that featured well-known characters. Another problem

regarding the characters in the program was that there were too many characters appearing in the program. This might have scattered the audience's attention, which could have reduced the number of brands recalled and the interactions.

Finally, the overall number of the recalled brands was rather small ($M = 1.69$). This means that, when a single brand or a single product category was examined, most participants could not recall any brands at all. The low amount of recalled brands may be partly due to the fact that there were too many brands (i.e., $n = 24$) appearing in the stimulus material. Moreover, the amount of interactions was relatively low. The mean score for the amount of interaction was 4.04, which indicates that the participants viewed an average of four brands during the program. The participants were specifically instructed during the experiment to interact with the iPPLs only when they thought it was necessary. Although this instruction was designed to maximize the reality and minimize the novelty effect, it might have decreased the amount of interactions. On the other hand, the low level of interactions might predict what would happen when ITV becomes a reality. No matter what the cause of low level of interactions was, this low level of interactions made it difficult to examine its relationship with other variables because most participants reported no interactions when a single brand or product category was examined. For example, when the amount of interactions with a kitchenware item was examined (Table 6.22.1), 324 participants (81.8%) reported no interaction. The fact that all structural equation models have failed to provide significant relationships among variables might be explained by the low amounts of interactions and recalled brands.

Future studies on the advertising in interactive television should consider the above issues. To lessen the above problems that arose from using an existing program

(i.e., failed manipulation on program involvement, positive attitudes, and the large number of brands and characters in the program), future studies might use a short segment of a program for an experiment, as opposed to using a whole episode. Furthermore, other variables that were not employed in this research should be considered. By employing various involvement and attitude variables, this research attempted to predict the advertising effectiveness in the ITV environment. However, some relationships tested in this research called for further investigation. For example, the audience's attitude toward a character was found to affect the amount of interactions with the iPPLs paired with the character. Also, the audience's attitude toward a character was found to be related with their changes in the attitude toward brands featured in iPPLs. But the results showed that the strength of the relationship varied in different characters. Certain characteristics in a character (e.g., credibility, attractiveness, self-identification, etc.) might be responsible, so further investigation is needed.

Also, the future studies on interactive advertising should focus more on the actual interactions than the features or perceptions of interactivity. Unlike previous studies on interactive advertising, this dissertation recognizes that interactivity might not always be perceived as positive. Interactive features are described only as a device that would increase the chances of interaction, not representing the true causes of interactions. In this dissertation, people's purposes in using a particular medium or content were posited as a fundamental indicator of interactions, and (unlike interactivity) interactions were portrayed as a relatively neutral construct. Therefore, future studies need to examine this relationship in more details, and further indicators of interaction need to be explored.

The difference between *a character* and *an actor* (or an actress) also needs to be investigated. Many studies have examined the relationship between the source characteristics and the advertising effectiveness (e.g., Goldsmith, Lafferty, & Newell, 2000; Gotlieb & Sarel, 1991; Ohanian, 1991). However, most of them focused on consumers' perceptions of the actor while not considering the story of the program or the media vehicle in which the actor appears. Popular actors and actresses appear in a number of different programs playing different characters. For example, Courteney Cox (who stars in *Friends* as Monica) appeared in 30 movies and TV shows. Kevin Bacon starred in 48 movies and TV programs (excluding talk shows). When celebrities endorse a product from outside the program, consumers' perceptions of the actor alone, not the character, could explain the advertising effectiveness. But when the advertising occurs in the program, as in the case of iPPL, the perceptions of the actor might be insufficient because the perceptions of the actor would be affected by the characteristics of the program and of the character the actor is playing. Therefore, in addition to the perceptions of actors and actresses, *characters* need to be studied further.

Next, the variables used in this research are not exhaustive, and there might be other variables that could complement the proposed model. For example, different types of programs might affect the advertising effectiveness. As Lee and Lee (1995) projected, the audience may not prefer having to interact with a television program. This tendency to interact might vary in different programs. Therefore, this research should be extended to test other program types than sitcoms. Considering that ITV will bring enormous changes in the advertising environment, the importance of identifying and investigating various factors that might affect advertising effectiveness in ITV cannot be overrated.

Finally, legal perspectives of iPPL must be investigated. Unlike product placements (PPL) in movies, product placement in television is more severely regulated by the Federal Communications Commission (FCC)'s sponsorship identification rules. However, it should be noted that the nature of conventional PPL is forced exposure, whereas the exposures to an iPPL is always voluntary. In this regard, application of existing rules should be reevaluated, and studies on this regulatory aspect will greatly contribute to the growth of iPPL practices.

7.6. Conclusions and Implications

A conventional television audience is passively exposed to commercials even though the audience did not choose to be exposed. Therefore, possibilities always exist that the audience is watching a commercial they do not like. This means the simple exposure-based measures like reach and frequency are not correctly reflecting whether consumers liked or disliked the ad. On the contrary, the advertising in ITV, especially iPPL, delivers the advertising message only when the audience requests. Therefore, the advertiser would become able to deliver more information without being intrusive or annoying. Also, the voluntary nature of the advertising exposure is expected to increase the advertising effectiveness among those exposed.

The current research examined factors that would affect the effectiveness of iPPLs before ITV becomes widely diffused. For this study, the audience's involvement with product categories, involvement with the program, and attitudes toward the program and its characters were examined. Consistent with previous studies on advertising and product involvement, the current research has found that higher levels of product involvement

generated more interactions with the ad. Although product involvement was found to increase the audience's interactions with the embedded iPPLs, it does not mean that the actual purchases will also rise. The findings from this study are strictly confined to the audience's attention and interactions with the brand. Higher levels of program involvement were also found to increase the amount of interactions with the ad. It can be interpreted that the arousal triggered by high levels of program involvement caused heightened levels of the audience's processing of the information in the program.

Consumers' positive attitudes toward the program and a character were found to be transferred to the attitude toward the brand. Particularly, the attitude toward the program was found to have a stronger impact on the attitude toward the brand. It implies that certain programs and characters will be preferred by advertisers. For advertisers, these results provide an answer to the question as to which character and program they should select for their brands. In particular, the results from testing Hypotheses 6 and 8 indicate that consumers' attitudes toward the character were more effective in generating their interactions with the paired iPPLs. On the other hand, the results from the Hypotheses 7 and 10 show that consumers' attitudes toward the program were more effective in improving their attitudes toward the brands featured in the iPPLs. These results provide valuable tips to advertisers. That is, when an advertiser's primary purpose is to generate consumers' interactions with the ad or to increase their awareness with the brand, the advertiser should pair the ad with favorable characters. On the contrary, when the advertiser's primary goal is to improve consumers' attitudes toward the brand, consumers' attitudes toward the particular program should be considered rather than the attitude toward particular characters in the program.

Although this result might be helpful for advertisers in selecting particular media vehicles for their ads, it might pose a threat to the producers and stations of certain types of programs. For example, advertisers' preference for certain programs or characters over others might expand the gap between popular programs and unpopular programs, especially considering that the iPPL has a capability to generate direct sales.

Finally, audience members who interacted with iPPLs more actively showed a bigger increase in their levels of involvement with the program than those who demonstrated lesser amounts of interactions. Considering that program involvement represents more intensive consumption of the program, this result implies that the interactions within an ITV program can positively affect the audience's evaluations and consumption patterns of the program. Interactive television is expected to bring about a number of changes to the current media industry including the relationship between advertisers and producers. For instance, advertisers' influence on the program might increase because advertisers will not only prefer particular programs for their ads, but also they will want to place their ads in their preferred places paired with preferred characters. Consequently, the program formats are anticipated to endure dramatic changes because the stations and the producers might want to secure as many opportunities for iPPLs to host as many advertisers as possible.

This dissertation provides an idea as to how the iPPL in ITV, unlike the passive commercials in conventional television environment, can change the audience's consumption patterns of programs and ads. When color televisions were first introduced to the public, the industry had to experience a huge revolution in terms of its program

planning, make-up, lighting, and so on. When the iPPL becomes widely accepted, not only the program content but also the diversity of programs could be affected.

Specifically, this dissertation describes that the iPPL can deliver the advertising information only when it is wanted by the audience. Therefore, ITV and the iPPL provide benefits to both audiences and advertisers. Audiences will benefit because they will not be interrupted by unwanted and possibly intrusive commercial messages while they watch a program, and yet they will be able to examine the information of the products of their interest. Advertisers will benefit because the audience's voluntary exposures to the ads will promise a means to deliver their ads more efficiently and generate direct sales. IPPLs will also provide media planners with more opportunities to improve their media mix. For example, media planners would be able to choose particular programs or characters based on whether the purpose of the advertising is to generate sales or to increase interactions. In summary, advertisers, producers, and stations all need to prepare from the various perspectives for the changes ITV and iPPL might bring about.

Pretest for Attitude toward Brands

1.1. Crew:

J.CREW

bad	:	:	:	:	:	:	good
pleasant	:	:	:	:	:	:	unpleasant
unfavorable	:	:	:	:	:	:	favorable

1.2. Gap:



bad	_____:	_____:	_____:	_____:	_____:	good
pleasant	_____:	_____:	_____:	_____:	_____:	unpleasant
unfavorable	:	:	:	:	:	favorable

1.3. Eddie Bauer:

Eddie Bauer

Bad	_____:	_____:	_____:	_____:	_____:	_____:	good
Pleasant	_____:	_____:	_____:	_____:	_____:	_____:	unpleasant
Unfavorable	:	:	:	:	:	:	favorable

1.4. Calvin Klein:

Chloroform

bad _____ : _____ : _____ : _____ : _____ : _____ : _____ **good**

pleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ **unpleasant**

unfavorable _____ : _____ : _____ : _____ : _____ : _____ : _____ **favorable**

1.5. Abercrombie & Fitch:

Abercrombie & Fitch

bad	_____:	_____:	_____:	_____:	_____:	good
pleasant	_____:	_____:	_____:	_____:	_____:	unpleasant
unfavorable	:	:	:	:	:	favorable

1.6. Polo Ralph Lauren:



POLO
RALPH LAUREN

Bad	:	:	:	:	:	:	good
Pleasant	:	:	:	:	:	:	unpleasant
Unfavorable	:	:	:	:	:	:	favorable

1.7. Banana Republic:

BANANA REPUBLIC

bad _____ good
pleasant _____ unpleasant
unfavorable _____ favorable

1.8. American Eagle Outfitters:

AMERICAN EAGLE OF HITTERS

bad _____ good
pleasant _____ unpleasant
unfavorable _____ favorable

1.9. Arizona Jeans:

ARIZONA

bad	: : : :	good
pleasant	: : : :	unpleasant
unfavorable	: : : :	favorable

1.10. Tommy Bahama (Men's Clothing):

Tommy Bahama

Bad	<u> </u> : <u> </u> : <u> </u> : <u> </u> : <u> </u> :	good
pleasant	<u> </u> : <u> </u> : <u> </u> : <u> </u> : <u> </u> :	unpleasant
unfavorable	<u> </u> : <u> </u> : <u> </u> : <u> </u> : <u> </u> :	favorable

1.11. Limited:

Limited

bad	— : — : — : — : — : —	good
pleasant	— : — : — : — : — : —	unpleasant
unfavorable	— : — : — : — : — : —	favorable

1.12. DKNY (Women's Clothing):

DKNY

bad	_ _ :	_ _ :	_ _ :	_ _ :	_ _ :	good
pleasant	_ _ :	_ _ :	_ _ :	_ _ :	_ _ :	unpleasant
unfavorable	_ _ :	_ _ :	_ _ :	_ _ :	_ _ :	favorable

1.13. Sara Lee (Frozen Dessert):

Sara Lee

bad	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	good
pleasant	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	unpleasant
unfavorable	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	<u> </u> : <u> </u> :	favorable

1.14. **Impulse (Beverage):**



bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable

1.15. **Starbucks:**



bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable

1.16. **IKEA (Furniture):**



bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable

1.17. **Art Van Furniture:**



bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable

1.18. **La-Z-Boy (Recliners):**



bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable

1.19. **Target (for Kitchenware):**



bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable

1.20. **WalMart (for Home Accessories. e.g., message boards, CD racks):**



Bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
Pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
Unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable

1.21. **OfficeMax** (for Home Accessories. e.g., message boards, CD racks):



bad	_____	_____	_____	_____	_____	_____	_____	good
pleasant	_____	_____	_____	_____	_____	_____	_____	unpleasant
unfavorable	_____	_____	_____	_____	_____	_____	_____	favorable

1.22. **Pottery Barn** (Kitchenware, Tableware, etc.):



Bad	_____	_____	_____	_____	_____	_____	_____	good
Pleasant	_____	_____	_____	_____	_____	_____	_____	unpleasant
Unfavorable	_____	_____	_____	_____	_____	_____	_____	favorable

1.23. **Crate & Barrel** (Kitchenware, Tableware, etc.):



Bad	_____	_____	_____	_____	_____	_____	_____	good
pleasant	_____	_____	_____	_____	_____	_____	_____	unpleasant
unfavorable	_____	_____	_____	_____	_____	_____	_____	favorable

1.24. **Panasonic**:



bad	_____	_____	_____	_____	_____	_____	_____	good
pleasant	_____	_____	_____	_____	_____	_____	_____	unpleasant
unfavorable	_____	_____	_____	_____	_____	_____	_____	favorable

Thank you. You will have to fill out another set of questionnaire when you come to the main experiment. Please mark your calendar, and arrive five minutes prior to the experiment.

Posttest for Other Measures

Thank you for participating in the experiment. The purpose of this study is to examine audiences' responses to "Interactive TV." Please read carefully before you start the questionnaire.

Based on your own perception, make each item a separate and independent judgment.

Work at fairly high speed through this questionnaire. Do not worry or puzzle over individual items. It is your first impressions, the immediate feelings about the items that we want.

On the other hand, please do not be careless, because we want your true impressions.

Here is how you are to use these scales.

Place your check mark or circle according to how closely your perception is related to one or the other end of the scale.

① Question Example 1

How important are your parents in choosing a computer?

Unimportant ____: ☒ : ____: ____: ____: ____: ____: Important

① Question Example 2

	Strongly Disagree							Strongly Agree
I am familiar with the <u>Intel</u> commercial.	1	2	3	4	5	6	☒	7

Important

Please do not skip questions. Also, never put more than one check mark or circle on a single scale

2.1. To me **Tableware** is: (e.g., plates, bowl, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

2.2. To me **Clothing** is: (e.g., jackets, pants, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

2.3. To me **Beverages** are: (e.g., soda, juice, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

2.4. To me **Home Accessories** are: (e.g., CD racks, message boards, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

2.5. To me **Telephones (not mobile phones)** are:

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
Means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

2.6. To me **Frozen Dessert Products** are: (e.g., frozen pies, cakes, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

2.7. To me **Furniture** is: (e.g., dining table, sofa, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

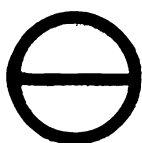
2.8. To me **Kitchen Gadget Products** are: (e.g., coffee mugs, plates, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

2.9. To me **"Friends" (NBC sitcom)** is:

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

bad	_____	_____	_____	_____	_____	_____	good
pleasant	_____	_____	_____	_____	_____	_____	unpleasant
unfavorable	_____	_____	_____	_____	_____	_____	favorable
appealing	_____	_____	_____	_____	_____	_____	unappealing
unattractive	_____	_____	_____	_____	_____	_____	attractive



This is the end of the Step 1.

Do NOT turn the page over.

Now, please follow the instructions on your screen.

**Please fill out the rest of the questionnaire
ONLY WHEN the program is over.**

**The following items are about your feeling while watching the show.
Please describe your feeling by placing check marks on the scales given below.**

3. Thinking when I was watching the show, ***Friends*** was:

important	_____ : _____ : _____ : _____ : _____ : _____ : _____	unimportant
boring	_____ : _____ : _____ : _____ : _____ : _____ : _____	interesting
relevant	_____ : _____ : _____ : _____ : _____ : _____ : _____	irrelevant
exciting	_____ : _____ : _____ : _____ : _____ : _____ : _____	unexciting
means nothing	_____ : _____ : _____ : _____ : _____ : _____ : _____	means a lot to me
bad	_____ : _____ : _____ : _____ : _____ : _____ : _____	good
pleasant	_____ : _____ : _____ : _____ : _____ : _____ : _____	unpleasant
unfavorable	_____ : _____ : _____ : _____ : _____ : _____ : _____	favorable
appealing	_____ : _____ : _____ : _____ : _____ : _____ : _____	unappealing
unattractive	_____ : _____ : _____ : _____ : _____ : _____ : _____	attractive

Following questions ask about your feeling about each character in *Friends*.

7.1. Chandler is:



Matthew Perry

bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable
appealing	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unappealing
unattractive	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	attractive

7.2. Joey is:



Matt LeBlanc

bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable
appealing	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unappealing
unattractive	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	attractive

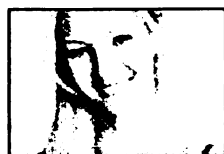
7.3. Monica is :



Courteney Cox Arquette

bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable
appealing	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unappealing
unattractive	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	attractive

7.4. Phoebe is:



Lisa Kudrow

bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable
appealing	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unappealing
unattractive	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	attractive

7.5. Rachel is:



Jennifer Aniston

bad	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	good
pleasant	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unpleasant
unfavorable	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	favorable
appealing	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	unappealing
unattractive	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	:	_____	attractive

7.6. Ross is:

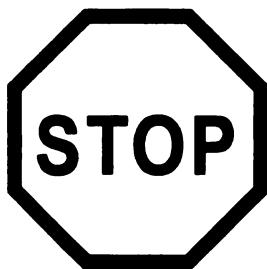


David Schwimmer

bad	_____	_____	_____	_____	_____	_____	_____	good
pleasant	_____	_____	_____	_____	_____	_____	_____	unpleasant
unfavorable	_____	_____	_____	_____	_____	_____	_____	favorable
appealing	_____	_____	_____	_____	_____	_____	_____	unappealing
unattractive	_____	_____	_____	_____	_____	_____	_____	attractive

8. Please list all brands you remember seeing during the show (*Friends*).

(Note: Please write down brands, not products. For example, Chevrolet, IBM, and Timex are brands. Cars, computers, and watches are NOT.)



This is the end of the Step 2.

Before proceeding to the next page, please take off the first 6 pages of this questionnaire and submit them to the researcher.

Now, **think when you were watching the program** in the experiment.
Please indicate the degree you agree or disagree to the following statements.

10.1. To me **Tableware** is: (e.g., plates, bowl, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

10.2. To me **Clothing** is: (e.g., jackets, pants, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

10.3. To me **Beverages** are: (e.g., soda, juice, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

10.4. To me **Home Accessories** are: (e.g., CD racks, message boards, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

10.5. To me **Telephones (not mobile phones)** are:

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
Means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

10.6. To me **Frozen Dessert Products** are: (e.g., frozen pies, cakes, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

10.7. To me **Furniture** is: (e.g., dining table, sofa, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

10.8. To me **Kitchen Gadget Products** are: (e.g., coffee mugs, plates, etc.)

important	_____	_____	_____	_____	_____	_____	unimportant
boring	_____	_____	_____	_____	_____	_____	interesting
relevant	_____	_____	_____	_____	_____	_____	irrelevant
exciting	_____	_____	_____	_____	_____	_____	unexciting
means nothing	_____	_____	_____	_____	_____	_____	means a lot to me

Following questions ask your feeling about certain brands.

11.1. JCrew:

J.CREW

bad	_____	_____	_____	_____	_____	_____	good
pleasant	_____	_____	_____	_____	_____	_____	unpleasant
unfavorable	_____	_____	_____	_____	_____	_____	favorable

11.2. Gap:



bad	_____	_____	_____	_____	_____	_____	good
pleasant	_____	_____	_____	_____	_____	_____	unpleasant
unfavorable	_____	_____	_____	_____	_____	_____	favorable

11.3. Eddie Bauer:

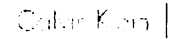


Bad _____ : _____ : _____ : _____ : _____ : _____ : _____ **good**

Pleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ **unpleasant**

Unfavorable _____ : _____ : _____ : _____ : _____ : _____ : _____ **favorable**

11.4. Calvin Klein:



bad _____ : _____ : _____ : _____ : _____ : _____ : _____ **good**

pleasant _____ : _____ : _____ : _____ : _____ : _____ : _____ **unpleasant**

unfavorable _____ : _____ : _____ : _____ : _____ : _____ : _____ **favorable**

11.5. Abercrombie & Fitch:



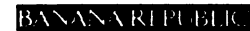
bad	— : — : — : — : — :	good
pleasant	— : — : — : — : — :	unpleasant
unfavorable	— : — : — : — : — :	favorable

11.6. Polo Ralph Lauren:



Bad	_ _ : _ _ : _ _ : _ _ : _ _ : _ _ :	good
Pleasant	_ _ : _ _ : _ _ : _ _ : _ _ : _ _ :	unpleasant
Unfavorable	_ _ : _ _ : _ _ : _ _ : _ _ : _ _ :	favorable

11.7. Banana Republic:

[illegible]

11.8. American Eagle Outfitters:



bad	_____:	_____:	_____:	_____:	_____:	_____:	good
pleasant	_____:	_____:	_____:	_____:	_____:	_____:	unpleasant
unfavorable	:	:	:	:	:	:	favorable

11.9. Arizona Jeans:



bad	:	:	:	:	:	:	good
pleasant	:	:	:	:	:	:	unpleasant
unfavorable	:	:	:	:	:	:	favorable

11.10. Tommy Bahama (Men's Clothing):



Bad	_____:	_____:	_____:	_____:	_____:	_____:
pleasant	_____:	_____:	_____:	_____:	_____:	_____:
unfavorable	_____:	_____:	_____:	_____:	_____:	_____:

good
unpleasant
favorable

11.11. Limited:



bad	_____:	_____:	_____:	_____:	_____:	_____:
pleasant	_____:	_____:	_____:	_____:	_____:	_____:
unfavorable	_____:	_____:	_____:	_____:	_____:	_____:

good
unpleasant
favorable

11.12. DKNY (Women's Clothing):



bad	_____	_____	_____	_____	_____	_____
pleasant	_____	_____	_____	_____	_____	_____
unfavorable	_____	_____	_____	_____	_____	_____

good
unpleasant
favorable

11.13. Sara Lee (Frozen Dessert):



bad	_____	_____	_____	_____	_____	_____
pleasant	_____	_____	_____	_____	_____	_____
unfavorable	_____	_____	_____	_____	_____	_____

good
unpleasant
favorable

11.14. Impulse (Beverage):



bad	_____	_____	_____	_____	_____	_____
pleasant	_____	_____	_____	_____	_____	_____
unfavorable	_____	_____	_____	_____	_____	_____

good
unpleasant
favorable

11.15. Starbucks:



bad	_____	_____	_____	_____	_____	_____
pleasant	_____	_____	_____	_____	_____	_____
unfavorable	_____	_____	_____	_____	_____	_____

good
unpleasant
favorable

11.16. IKEA (Furniture):



bad	_____	_____	_____	_____	_____	_____
pleasant	_____	_____	_____	_____	_____	_____
unfavorable	_____	_____	_____	_____	_____	_____

good
unpleasant
favorable



LA Z BOY

LA Z BOY

**WAL*MART****WAL*MART**

P U B L I S H E D

P U B L I S H E D

Crate&Barrel**Crate&Barrel**

Panasonic

Finally, we would like to get some information about you. Please mark the appropriate answer.

- This is the end of this questionnaire.**
Thank you for your time and cooperation!
Please leave this questionnaire in front of the monitor.

APPENDIX B. INSTRUCTION FOR THE EXPERIMENT

Instruction for Participants in All Program Involvement Conditions (High and Low)

Instructions for Practice Stage: Page 1 of 6

The following paragraphs contain very important instructions regarding this experiment. Please read this information carefully.

Shortly, you will be watching a 3-minute TV program, which has been prepared to make you familiar with the interactive television (ITV) interface and to let you practice its features using a computer.

This ITV interface is not yet commercially available in the U.S., although it is available in many European countries. The main idea of the ITV is to allow the television audience to interact with the program contents.

In the following practice stage of the experiment, you will be watching a 3-minute segment of a popular sitcom – *Friends*. There is some product information embedded in the program. The idea is that audiences will be able to get additional information about the products appearing in the program, or even purchase them, through the simple operation of their remote control.

This function has been activated in the ITV interface in this experiment. Therefore, during both the practice session and the main experiment, you will be able to access product information by clicking your mouse instead of using a remote control.

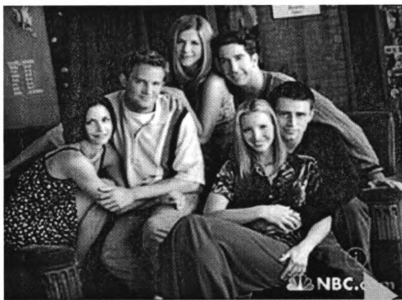
The next pages will show you the interface in more details.

GO TO THE NEXT PAGE

Instructions for Practice Stage: Page 2 of 6

Although you will be watching a program on this computer screen instead of a television set, the program will look exactly the same as it would in an ordinary situation, except for one thing.

In the bottom-right corner of the screen, you will sometimes find a rotating blue icon “Ⓢ”.



<Figure 1> Icon in the screen

Icon is rotating

When the icon is on the screen, it means that the icon is clickable and that there is product information available for you to see by clicking the icon.

GO TO THE NEXT PAGE

Instructions for Practice Stage: Page 3 of 6

When you watch the show, assume that you have noticed a product that interests you (e.g., clothes worn by a character), and that there is the icon on the screen. If you click the icon, the program will pause, and the list of available products will pop up (Figure 2). If the product that interested you is not included in the list, you can close the list simply by clicking the Close (Down-Arrow) button. The program will resume.

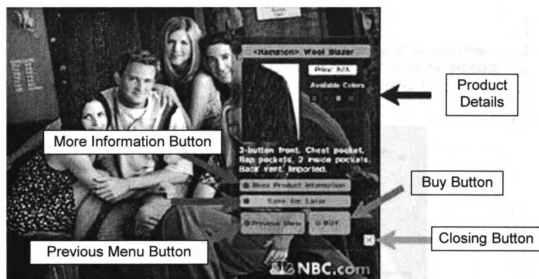


<Figure 2> Product List

GO TO THE NEXT PAGE

Instructions for Practice Stage: Page 4 of 6

If the product that interested you is included in the list, click on the product name. A small box that contains detailed product information will pop up. This is called a "product information box." (Figure 3)



<Figure 3> Product Information Box

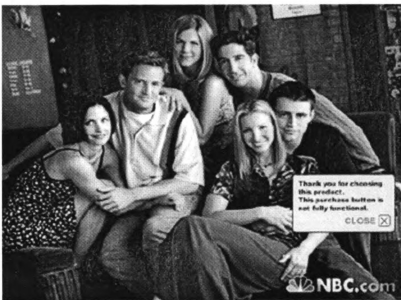
You will notice that the product information box has several buttons such as [Save for Later], [More Product Information], [Buy], [Previous Menu], and [X] (Close). Because this is an experiment, the [Save for Later] and [More Product Information] buttons have been deactivated. That is, these two buttons CANNOT be clicked.

GO TO THE NEXT PAGE

Instructions for Practice Stage: Page 5 of 6

Unlike the [Save for Later] and [More Product Information] buttons, the [Buy] button is clickable. However, the [Buy] button is only partially working. Because this is a test, clicking this [Buy] button does not mean that you are actually purchasing the product or paying for the product. However, we want you to click the [Buy] button if you feel that you might want to purchase the product if the interface were real. (Figure 4)

The [Previous Menu] button will close the product information box and re-open the list of the available products. And finally, the [X] (Close) button will close the product information box and resume the program so you can continue watching it.



<Figure 4> Product Information Box: Disabled Button(s)

GO TO THE NEXT PAGE

Instructions for Practice Stage: Page 6 of 6

Now, you are ready to proceed to the 3-minute practice session. Please put your headset on if you haven't already done so. You don't have to use the keyboard. The mouse will be your input device.

During the practice session, please interact with the products as much as you want because the purpose of this session is to let you get used to the interface.

If you have any questions about the interface, please raise your hand now and let the research administrator know. Otherwise, you may click the button below and start the practice.

BEGIN THE PRACTICE

**Instruction for Participants in the High Program Involvement Condition
(After Practice)**

Instructions for Main Experiment: Page 1 of 4

We hope you enjoyed the practice session.

Now, you are about to begin the main experiment. Before we let you start, we'd like to tell you a few more things. First of all, this main experiment is different from the practice session in several ways.

- (1) The length of the program is approximately 25 minutes.
- (2) Product information will not be available all of the time. You will find information only when the icon "①" is rotating on the screen.
- (3) Your movements on the computer screen will be recorded by computer software.

You are not being recorded by a camcorder. Only your *on-screen* activities will be recorded; for example, clicking, opening/closing windows, and moving the mouse pointer.

It is extremely important that you act as if you were watching a real ITV program in the real world. In other words, we ask you to not open every single product embedded in the program. Please open the product information only when you think the product interests you.

GO TO THE NEXT PAGE

Instructions for Main Experiment: Page 2 of 4

The program you will be watching for the main experiment is a different episode of *Friends*. As mentioned earlier, you will watch the whole 25 minutes of the show. The episode is #408, "The One With Chandler in a Box." In case you haven't watched the show for a while, or for those who do not know about this program very well, here is the synopsis of this episode.

In previous episodes, Chandler became attracted to Kathy (guest star Paget Brewster), who was then dating Joey. Despite the guilt, Chandler's feelings got deeper, and so did Kathy's feelings. One day, Chandler kissed her, and she dumped Joey. Chandler confessed, but Joey felt betrayed.

In this episode, Joey is still upset at Chandler about Kathy. Joey tries to get over it but can't, and decides to move out... until he and Chandler stumble upon a way for Chandler to make it up to him—spending most of Thanksgiving day in a box.

Monica injures her eye but doesn't want to have to see Richard (former boyfriend) again; she arranges to see the on-call doctor, who turns out to be very cute... and Richard's son. She invites him over to their Thanksgiving dinner.

The gang decides to do secret Santa for each other; Ross torments Rachel about always exchanging gifts, until she can't stand it and shows him all the stuff she saved from their relationship.

GO TO THE NEXT PAGE

Instruction for Main Experiment: Page 3 of 4

Beginning in March 2003, AT&T Broadband and Cox Communications will implement this Interactive Television interface in a nationwide test market using their digital cable service. Several cities in California, Georgia, Michigan, Florida, and Connecticut have been chosen for the testing, and the Greater Lansing area is included. A set-top box for this application will be rented at a low price.

The purpose of this experiment is to see how audiences react to the interface. Therefore, when the show ends, you will be asked to evaluate the overall episode. You will also be asked about some of the details of the episode. Answers to the questions are all included in the show. If you pay enough attention to the program, you will be able to answer the questions.

We encourage you to pay attention to the program. Two participants who provide the highest number of correct answers will be rewarded with a cash prize.

GO TO THE NEXT PAGE

Instructions for Main Experiment: Page 4 of 4

Now, you are about to begin the main experiment.

Again, we ask you not to view every product embedded in the program during the experiment. Just act like it is a real situation – open the product information only when you find the product interesting, and click the [BUY] button only when you think you might actually buy the product if it were a real-world situation.

Once the experiment begins, you are not allowed to ask any questions or talk to anybody. So, if you have any questions concerning this experiment, please raise your hand now and let the research administrator know.

Otherwise, click the below button, start the experiment, and have fun.

BEGIN THE EXPERIMENT

**Instruction for Participants in the Low Program Involvement Condition
(After Practice)**

Instructions for Main Experiment: Page 1 of 2

We hope you enjoyed the practice session.

Before we let you start the main experiment, we'd like to tell you a few more things. First of all, this main experiment is different from the practice session in several ways.

- (1) The length of the program is approximately 25 minutes.
- (2) Product information will not be available all of the time. You will find information only when the icon "(i)" is rotating on the screen.
- (3) Your movements on the computer screen will be recorded by computer software.

You are not being recorded by a camcorder. Only your *on-screen* activities will be recorded; for example, clicking, opening/closing windows, and moving the mouse pointer.

It is extremely important that you act as if you were watching a real ITV program in the real world. In other words, we ask you to not open every single product embedded in the program. Please open the product information only when you think the product interests you.

GO TO THE NEXT PAGE

Instructions for Main Experiment: Page 2 of 2

Now, you are about to begin the main experiment.

The program you will be watching for the main experiment is a different episode of *Friends*. As mentioned earlier, you will watch the whole 25 minutes of the show. The episode is #408, "The One With Chandler in a Box."

Again, we ask you not to view every product embedded in the program during the experiment. Just act like it is a real situation – open the product information only when you find the product interesting, and click the [BUY] button only when you think you might actually buy the product if it were a real-world situation.

Once the experiment begins, you are not allowed to ask any questions or talk to anybody. So, if you have any questions concerning this experiment, please raise your hand now and let the research administrator know.

Otherwise, click the below button, start the experiment, and have fun.

BEGIN THE EXPERIMENT

APPENDIX C. DESCRIPTIVE STATISTICS

Composition of the Samples as a Whole

N		396	
Age	Mean	20.61	
	Std. Deviation	2.27	
	Median	20.00	
Gender (%)	Male	134	(33.8%)
	Female	262	(66.2%)
Ethnic Background (%)			
	American Indian or Alaskan Native	2	(.5%)
	Asian, Asian American, or Pacific Islander	54	(13.6%)
	Black or African American	28	(7.1%)
	Mexican, Mexican American or Chicano	14	(3.5%)
	White (non-Hispanic)	288	(2.8%)
	Other	10	(2.5%)
Class Level (%)			
	Freshman	66	(16.7%)
	Sophomore	89	(22.5%)
	Junior	147	(37.1%)
	Senior	93	(23.5%)

Sample Composition by Conditions: High Program Involvement Condition

Conditions: Program Involvement		High	Low
N (%)	289	149	140
Age	Mean	19.99	21.14
	Std. Deviation	1.46	2.64
Gender (%)	Male	22 (14.8%)	75 (53.6%)
	Female	127 (85.2%)	65 (46.4%)
Ethnic Background (%)			
	American Indian or Alaskan Native	1 (.7%)	None
	Asian, Asian American, or Pacific Islander	14 (9.5%)	26 (18.6%)
	Black or African American	5 (3.4%)	16 (11.4%)
	Mexican, Mexican American or Chicano	6 (4.1%)	6 (4.3%)
	White (non-Hispanic)	121 (81.8%)	89 (62.9%)
	Other	1 (.7%)	4 (2.9%)
Class Level (%)			
	Freshman	34 (23.0%)	16 (11.4%)
	Sophomore	33 (22.3%)	28 (20.0%)
	Junior	60 (40.5%)	55 (39.3%)
	Senior	21 (14.2%)	41 (29.3%)

Summary of Audience's Interactions with iPPLs: By Product Category

Product Category	Items ¹	Interactions		
		Mean (Rate ²)	Std. Deviation	Median
Clothes	12	2.197 (18.3%)	2.251	2
Furniture	3	1.502 (50.1%)	1.140	0
Inexpensive Electronics	1	.134 (13.4%)	.438	0
Beverages	2	.692 (34.6%)	.989	0
Home Accessories	2	.948 (47.4%)	1.948	0
Kitchenware	1	.210 (21.0%)	.471	0
Tableware	2	.374 (18.7%)	.744	0
Desserts	1	.248 (24.8%)	.560	0

N = 396

¹ The number of items in the category

² Mean divided by the number of overall items in the category

Summary of Audience's Interactions with iPPLs: By Paired Characters

Product Category	Items ¹	Interactions		
		Mean (Rate ²)	Std. Deviation	Median
Chandler	3	.606 (20.2%)	.939	0
Joey	3	.215 (7.2%)	.638	0
Monica	3	.467 (15.6%)	.837	0
Phoebe	3	.664 (22.1%)	1.014	0
Rachel	3	1.192 (39.7%)	1.366	0
Ross	3	.508 (16.9%)	.974	0

N = 396

¹ The number of items paired with the corresponding character

² Mean divided by the number of overall items in the category

Summary of Audience's Interactions with iPPLs: By Brands

Brand Name	No. of Items	Interactions		
		Mean	Std. Deviation	Median
Abercrombie & Fitch	1	.114	.341	0
American Eagle	1	.139	.431	0
Arizona Jeans	1	.046	.232	0
Art Van	1	.447	.660	0
Banana Republic	1	.144	.411	0
Calvin Klein	1	.058	.265	0
Crate & Barrel	1	.210	.471	0
DKNY	1	.308	.588	0
Eddie Bauer	1	.450	.719	0
Gap *	1	.035	.222	0
IKEA	1	.217	.491	0
Impulse	1	.283	.552	0
J.Crew **	1	.571	.758	0
La-Z-Boy	1	.230	.560	0
Limited, The	1	.109	.384	0
Office Max	1	.182	.435	0
Panasonic	1	.134	.438	0
Polo Ralph Lauren	1	.159	.485	0
Pottery Barn	1	.202	.455	0
Sara Lee	1	.248	.560	0
Starbucks	1	.409	.736	0
Target	1	.172	.473	0
Tommy Bahama	1	.066	.303	0
WalMart	1	.404	.710	0

N = 396

* Item with the lowest amount of interactions

** Item with the highest amount of interactions

Frequencies of Audience's Interactions with iPPLs

N	396
Mean	4.040
Median	3
Mode	3
Std. Deviation	3.701
Minimum	0
Maximum	22
Percentiles	The Number of Interactions
10	0
20	1
30	2
40	2
50	3
60	4
70	5
80	7

BIBLIOGRAPHY

- Alba, J., Lynch, J., Weitz, B., Janiszewski, C., Lutz, R., et al. (1997). Interactive home shopping: Consumer, retailer, and manufacturer incentives to participate in electronic marketplaces. *Journal of Marketing*, 61(July), 38-53.
- Aldersey-Williams, H. (1996). Interactivity with a human face. *Technology Review*, 99(2), 34-36.
- Andrews, J. C., Durvasula, S., & Akhter, S. H. (1990). A framework for conceptualizing and measuring the involvement construct in advertising research. *Journal of Advertising*, 19(4), 27-40.
- Antil, J. H. (1984). Conceptualization and operationalization of involvement. In T. C. Kinnear (Ed.), *Advances in Consumer Research: Vol. 11* (pp. 203-209). Ann Arbor, MI: Association for Consumer Research.
- Avery, R., & Ferraro, R. (2000). Verisimilitude or advertising? Brand appearances on prime-time television. *Journal of Consumer Affairs*, 34(2), 217-244.
- Babin, L. A., & Carder, S. T. (1996). Viewers' recognition of brands placed within a film. *International Journal of Advertising*, 15(2), 140.
- Bailey, M. (1992). *The effects of progressive levels of interactivity in an interactive video lesson on achievement: Attitude and peer interaction*. Unpublished doctoral dissertation, Kansas State University.
- Balasubramanian, S. K. (1994). Beyond advertising and publicity: Hybrid messages and public policy issues. *Journal of Advertising*, 23(4), 29-46.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Bandura, A. (1982). Self-efficacy: mechanism in human agency. *American Psychologist*, 37(2), 122-147.
- Bandura, A., & Adams, N. E. (1977). Analysis of self-efficacy theory of behavioral change. *Cognitive Therapy and Research*, 1(4), 287-310.
- Barlett, M. (2002, January 21). Interactive TV finally ready to take off. *BizReport*, Retrieved May 22, 2002, from http://www.bizreport.com/article.php?art_id=2801&width=1024
- Batra, R., & Ray, M. L. (1983). Operationalizing involvement as depth and quality of cognitive response. In R. P. Bagozzi & A. M. Tybout (Eds.), *Advances in*

- Consumer Research: Vol. 10* (pp. 309-313). Ann Arbor, MI: Association for Consumer Research.
- Berthon, D. N. R. V. N. J.-P., & Davies, T. (1999). Going with the flow: Web sites and customer involvement. *Internet Research*, 9(2), 109-116.
- Bettman, J. R. (1979). *An Information Processing Theory of Consumer Choice*. Reading, MA: Addison-Wesley.
- Bloch, P. H. (1981). An exploration into the scaling of consumers' involvement with a product class. *Advances in Consumer Research*, 8, 61-65.
- Bloch, P. H. (1982). Involvement beyond the purchase process: Conceptual issues and empirical investigation. *Advances in Consumer Research*, 9, 413-417.
- Bowen, L., & Chaffee, S. H. (1974). Product involvement and pertinent advertising appeals. *Journalism Quarterly*, 51(Winter), 613-621, 644.
- Brennan, I., & Dubas, K. M. (1999). The influence of product-placement type and exposure time on product-placement recognition. *International Journal of Advertising*, 18(3), 323-338.
- Brody, E. W. (1990). *Communication Tomorrow: New Audiences, New Technologies, New Media*, New York: Praeger Press.
- Burnkrant, R. E., & Sawyer, A. G. (1983). Effects of involvement and message content on information-processing intensity. In R. J. Harris (Ed.), *Information Processing Research in Advertising* (pp. 43-64). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Center for Media Research (2002, August 29). Research brief – Ad clutter diminishes performance. *Center for Media Research*, Retrieved August 29, 2002, from http://www.mediapost.com/research/cfmr_briefArchive.cfm?s=180540
- Buss, D. D. (1998). Making your mark in movies and TV. *Nation's Business*, 86(12), 28-32.
- Cacioppo, J. T., & Petty, R. E. (1979). Effects of message repetition and position on cognitive responses, recall, and persuasion. *Journal of Personality and Social Psychology*, 37(January), 97-109.
- Cannon, H. M. (1982). A new method for estimating the effect of media context – Using value profiles of ads. *Journal of Advertising Research*, 22(5), 41-47.
- Celsi, R. L., & Olson, J. C. (1988). The role of involvement in attention and comprehension processes. *Journal of Consumer Research*, 15(September), 210-224.

- Chaiken, s. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, 39, 752-766.
- Chatterjee, P., Hoffman, D. L., & Novak, T. P. (1998). *Modeling the clickstream: Implications for Web-based advertising efforts*. Unpublished manuscript. Retrieved June 3, 2002, from <http://ecommerce.vanderbilt.edu/research/papers/pdf/manuscripts/Clickstream-pdf.pdf>
- Chattopadhyay, A., & Nedungadi, P. (1990). Ad affect, brand attitude, and choice: The moderating roles of delay and involvement. In E. Goldberg, G. Gorn, & R. W. Pollay (Eds.), *Advances in Consumer Research: Vol. 17* (pp. 619-620). Provo, UT: Association for Consumer Research.
- Chen, M. (1984). Computers in the lives of our children: Looking back on a generation of television research. In R. Rice et al. (Eds.), *The New Media: Communication, Research, and Technology* (pp.269-286). Beverly Hills, CA: Sage.
- Cho, C.-H. (1999). How advertising works on the WWW: Modified elaboration likelihood model. *Journal of Current Issues and Research in Advertising*, 21(1), 33-50.
- Cho, C.-H., & Leckenby, J. D. (1998). Copytesting of advertising on the WWW: Clicking motivation profile. *Proceedings of the Conference of the American Academy of Advertising*, 26-36.
- Cho, C.-H., & Leckenby, J. D. (1999). Interactivity as a measure of advertising effectiveness: Antecedents and consequences of interactivity in Web advertising. *Proceedings of the Conference of the American Academy of Advertising*, 162-179.
- Cialdini, R. B., & Petty, R. E. (1981). Anticipatory opinion effects. In R. E. Petty, T. M. Ostrom, & T. C. Brock (Eds.), *Cognitive responses in persuasion* (pp. 217-235). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Clancy, K. J., & Ostlund, L. E. (1976). Commercial effectiveness measures. *Journal of Advertising Research*, 16(1), 29-34.
- Colford, S. W., & Magiera, M. (1991). Products in movies: How big a deal. *Advertising Age*, 62(June), 12.
- Cooper, A. (1999), *The Inmates are Running the Asylum: Why High-Tech Products Drive Us Crazy and How to Restore the Sanity*. Indianapolis, IN: SAMS.
- Copeland, G., & Schweitzer, K. (1993). Domination of the remote control during family viewing. In J. R. Walker & R. V. Bellamy (Eds.), *Remote Control in the New Age of Television* (pp.155-168). Westport, CT: Praeger Publishers.

- Cornwell, N. C., Everett, S.-L., Everett, S. E., Moriarty, S., Russomanno, J. A., Tracey, M., & Trager, R. (1993). Measuring RCD use: Method matters. In J. R. Walker & R. V. Bellamy (Eds.), *Remote Control in the New Age of Television* (pp.43-55). Westport, CT: Praeger Publishers.
- Curtis, J. (1996). Taking pride of place. *Marketing*, November, 28, 55.
- d'Astous, A., & Seguin, N. (1999). Consumer reactions to product placement strategies in television sponsorship. *European Journal of Marketing*, 33(9/10), 896-910.
- DeLorme, D. E., & Reid, L. N. (1999). Moviegoers' experiences and interpretations of brands in films revisited. *Journal of Advertising*, 28(2), 71-95.
- DeLorme, D. E., Reid, L. N., & Zimmer, M. R. (1994). *Brands in films: Young moviegoers' experiences and interpretations*. Paper presented at the Conference of the American Academy of Advertising.
- De Pelsmacker, P., Geuens, M., & Anckaert, P. (2002). Media context and advertising effectiveness: The role of context appreciation and context/ad similarity. *Journal of Advertising*, 31(2), 49-61.
- Derks, P., & Arora, S. (1993). Sex and salience in the appreciation of cartoon humor. *Humor-International Journal of Humor Research*, 6(1), 57-69.
- DiClemente, C. C. (1981). Self-efficacy and smoking cessation maintenance: A preliminary report. *Cognitive Therapy and Research*, 5, 175-187.
- Eastman, S. T., & Newton, G. D. (1995). Delineating grazing: Observations of remote control use. *Journal of Communication*, 45(1), 78-96.
- Evrard, Y., & Aurier, P. (1996). Identification and validation of the components of the person-object relationship. *Journal of Business Research*, 37(2), 127-134.
- Fischer, B. R. (1996, January). Making your product the star attraction. *Promo*, 42-47.
- Fortin, D. R. (1997). *The impact of interactivity on advertising effectiveness in the new media*. Unpublished doctoral dissertation, University of Rhode Island.
- Frazer, C., & McMillan, S. (1996, May), *Sophistication on the World Wide Web: Evaluating structure, function and commercial goals of Web sites*. Paper presented at the Advertising and Consumer Psychology Conference, Bloomfield Hills, MI.
- Frisby, C. M. (2001). Building theoretical insights to explain differences in remote control use between males and females: A meta-analysis. *Journal of Current Issues and Research in Advertising*, 21(2), 59-76.
- FTC Sponsorship Identification Rule, 47 C.F.R. §73.1212 (1996).

- Gardner, M. P. (1985). Does attitude toward the ad affect brand attitude under a brand evaluation set? *Journal of Marketing Research*, 22(May), 192-198.
- Gardner, M. P., Mitchell, A. A., & Russo, J. E. (1978). Chronometric analysis: Introduction and an application to low involvement perception of advertisements. In H. K. Hunt (Ed.), *Advances in Consumer Research: Vol. 5* (pp. 581-589). Ann Arbor, MI: Association for Consumer Research.
- Gibson, L. D. (1983). If the question is copy testing, the answer is not recall. *Journal of Advertising Research*, 23(1), 39-55.
- Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, 17(April), 183-211.
- Goldsmith, R. E., Lafferty, B. A., & Newell, S. J. (2000). The impact of corporate credibility and celebrity credibility on consumer reaction to advertisements and brands. *Journal of Advertising*, 29(3), 43-54.
- Gotlieb, J. B., & Sarel, D. (1991). Comparative advertising effectiveness: The role of involvement and source credibility. *Journal of Advertising*, 20(1), 38-45.
- Gould, S. J., Gupta, P. B., & Grabner-Krauter, S. (2000). Product placements in movies: A cross-cultural analysis of Austrian, French, and American consumers' attitudes toward this emerging, international promotional medium. *Journal of Advertising*, 29(4), 41-58.
- Greene, W. F. (1988). Maybe the valley of the shadow isn't so dark after all. *Journal of Advertising Research*, 28(5), 11-15.
- Greenspan, R. (2002, September 11). Interactive TV gaining acceptance. *CyberAtlas*, Retrieved September 12, 2002, from http://cyberatlas.internet.com/big_picture/applications/article/0,,1301_1461471,00.html
- Greenwald, A. G. (1968). Cognitive learning, cognitive response to persuasion and attitude change. In A. G. Greenwald, T. C. Brock, & T. M. Ostrom (Eds.), *Psychological Foundations of Attitudes* (pp. 147-170). New York: Academic Press.
- Greenwald, A. G., & Leavitt, C. (1984). Audience involvement in advertising: Four levels. *Journal of Consumer Research*, 11(June), 581-592.
- Grover, R. (2002, June 17). Hollywood Product Placement, Circa 2054. *Business Week*. Retrieved June 20, 2002, from http://www.businessweek.com/bwdaily/dnflash/jun2002/nf20020617_8135.htm
- Gunter, B., Furnham, A., & Beeson, C. (1997). Recall of television advertisements as a function of program evaluation. *Journal of Psychology*, 131(5), 541-553.

- Gupta, P. B., & Gould, S. J. (1997). Consumers' perceptions of ethics and acceptability of product placements in movies: Product category and individual differences. *Journal of Current Issues and Research in Advertising*, 19(1), 37-50.
- Gupta, P. B., & Lord, K. R. (1998). Product placement in movies: The effect of prominence and mode on audience recall. *Journal of Current Issues and Research in Advertising*, 20(1), 47-59.
- Ha, L., & James, E. L. (1998). Interactivity reexamined: A baseline analysis of early business Web sites. *Journal of Broadcasting & Electronic Media*, 42(Fall), 457-474.
- Hale, K. (1999a, Sep. 6). Enhanced TV: Wink Communications. *Broadcasting & Cable*, 129(37), 36.
- Hale, K. (1999b, Sep. 6). Personal TV: Replay TV. *Broadcasting & Cable*, 129(37), 26.
- Heeter, C. (1986). *Perspectives for the development of research on media systems*, Unpublished doctoral dissertation, Michigan State University.
- Heeter, C. (1988). Gender differences in viewing styles. In C. Heeter & B. Greenberg (Eds.), *Cableviewing*. Norwood, NJ: Ablex Publishing.
- Heeter, C. (1989). Implications of new interactive technologies for conceptualizing communication. In J. L. Salvaggio & J. Bryant (Eds.), *Media use in the information age: Emerging patterns of adoption and consumer use* (pp. 217-235). NJ: Lawrence Erlbaum Associates.
- Heeter, C. (2000). Interactivity in the context of designed experiences. *Journal of Interactive Advertising*, 1(1).
- Heeter, C., & Greenberg, B. S. (1985). Profiling the zappers. *Journal of Advertising Research*, 25(2), 15-19.
- Heider, F. (1946). Attitudes and cognitive organization. *Journal of Psychology*, 21, 136-141.
- Hoffman, D. L., & Novak, T. P. (1996). Marketing in hypermedia computer-mediated environments: Conceptual foundations. *Journal of Marketing*, 60(July), 50-68.
- Hoffman, D. L., Novak, T. P., & Chatterjee, P. (1995). Commercial scenario for the Web: Opportunities and challenges. *Journal of Computer-Mediated Communication*, 1(3).
- Ilfeld, J. S., & Winer, R. S. (2002). Generating website traffic. *Journal of Advertising Research*, 42(5), 49-61

- Insko, C. A., Lind, E. A., & LaTour, S. (1976). Persuasion, recall, and thoughts. *Representative Research in Social Psychology*, 7, 66-78.
- ITV Marketer (n.d.). *Prime Time Nears for Interactive TV in Europe*. Retrieved May 22, 2002, from <http://www.itvmarketer.com/mktres/europe/mreur02.htm>
- Jacobs, G., & Dransfield, H. (1998). Scenarios for interactive TV – Europe's uncertain future. *Long Range Planning*, 31(3), 396-405.
- Jaffe, M. (1996). *Media interactivity, cognitive flexibility, and self-efficacy*. Unpublished doctoral dissertation, University of Michigan.
- Johnson, B. T., & Eagly, A. H. (1989). Effects of involvement on persuasion: A meta-analysis. *Psychological Bulletin*, 106(2), 290-314.
- Kanner, B. (1993, November 29). All the right movies. *New York*, 20-21.
- Kapferer, J.-N., & Laurent, G. (1993). Further evidence on the consumer involvement profile: Five antecedents of involvement. *Psychology & Marketing*, 10(4), 347-355.
- Karrh, J. A. (1994). *Effects of brand placements in motion pictures*. Paper presented at the Conference of the American Academy of Advertising. Athens, GA.
- Karrh, J. A. (1998). Brand placement: A review. *Journal of Current Issues and Research in Advertising*, 20(2), 31-49.
- Kettanurak, V. (1996). *An empirical investigation of the degree of interactivity in an interactive multimedia instructional program*. Unpublished doctoral dissertation, University of Wisconsin - Milwaukee.
- Krugman, D. M., Cameron, G. T., White-McKearney, C. (1995). Visual attention to programming and commercials: The use of in-home observations. *Journal of Advertising*, 24(1), 1-12.
- Krugman, H. E. (1965). The impact of television advertising: Learning without involvement. *Public Opinion Quarterly*, 29, 349-356.
- Krugman, H. E. (1967). The measurement of advertising involvement. *Public Opinion Quarterly*, 30(Winter), 583-596.
- Ku, L. (1992). *Impacts of interactivity from computer-mediated communication in an organizational setting: A study of electronic mail*. Unpublished doctoral dissertation, Michigan State University.
- Laczniak, R. N., & Muehling, D. D. (1993). Toward a better understanding of the role of advertising message involvement in ad processing. *Psychology & Marketing*, 10(4), 310-319.

- Laurent, G., & Kapferer, J.-N. (1985). Measuring consumer involvement profiles. *Journal of Marketing Research*, 22(February), 41-53.
- Law, S. & Braun, K. A. (2000). I'll have what she's having: Gauging the impact of product placements on viewers. *Psychology & Marketing*, 17(12), 1059-1075.
- Lee, J.-H., & Edwards, S. M. (2002). The blame game: The moderating role of attribution between self-efficacy and performance on attitude toward Internet sites [Abstract]. *Proceedings of the Conference of the American Academy of Advertising*, 98.
- Lee, B., & Lee, R. S. (1995). How and why people watch TV: Implications for the future of interactive television. *Journal of Advertising Research*, 35(6), 9-18.
- Leigh, J. H., & Menon, A. (1987). Audience involvement effects on the information processing of umbrella print advertisements. *Journal of Advertising*, 16(3), 3-12.
- Longfellow, T. A., & Celuch, K. G. (1993). Segmenting customers by their degree of service involvement. *Proceedings of the Summer Educators Conference, American Marketing Association*, 390-396.
- Lord, K. R., & Burnkrant, R. E. (1993). Attention versus distraction: The interactive effect of program involvement and attention devices on commercial processing. *Journal of Advertising*, 22(1), 47-60.
- Lord, K. R., Lee, M.-S., & Sauer, P. L. (1994). Program context antecedents of attitude toward radio commercials. *Journal of the Academy of Marketing Science*, 22(1), 3-15.
- Lutz, R. J., & Guiry, M. (1994). Intense consumption experiences: Peaks, performances, and flows. Paper presented at the Winter Marketing Educators' Conference, St. Petersburg, FL, February.
- MacInnes, I. (1994). A model for standard setting: High definition television. *Contemporary Economic Policy*, 12(4), 67-78.
- MacInnis, D. J., & Jaworski, B. J. (1989). Information processing from advertisements: Toward an integrative framework. *Journal of Marketing*, 53(October), 1-23.
- MacInnis, D. J., Moorman, C., & Jaworski, B. J. (1991). Enhancing and measuring consumers' motivation, opportunity, and ability to process brand information from ads. *Journal of Marketing*, 55(October), 32-53.
- MacInnis, D. J., & Park, C. W. (1991). The differential role of characteristics of music on high- and low-involvement consumers' processing of ads. *Journal of Consumer Research*, 18(2), 161-173.

- MacKenzie, S. B., & Lutz, R. J. (1989). An empirical examination of the structural antecedents of attitude toward the ad in an advertising pretesting context. *Journal of Marketing*, 53(April), 48-65.
- Massey, B. L., & Levy, M. R. (1999). Interactivity, online journalism, and English-language Web newspapers in Asia. *Journalism & Mass Communication Quarterly*, 76, 138-151.
- McClellan, S. (1997, Apr. 9). Microsoft buying Web-TV. *Broadcasting & Cable*, 127(15), 11.
- McDonald, S. (1996, December). The most-wanted list. *TV Guide*, 28, 8.
- McGuire (1976). Some internal psychological factors influencing consumer choice. *Journal of Consumer Research*, 2(March), 302-319.
- McMillan, S. J. (1998). Who pays for content? Funding in interactive media. *Journal of Computer-Mediated Communication*, 4(1).
- McMillan, S. J. (2000a). Interactivity is in the eye of the beholder: Function, perception, involvement, and attitude toward the Web site. *Proceedings of the Conference of the American Academy of Advertising*, 71-78.
- McMillan, S. J. (2000b). *What is interactivity and what does it do?* Paper presented at the Conference of Association for Education in Journalism and Mass Communication, Phoenix, AZ.
- Merriam-Webster Collegiate Dictionary (2002). Retrieved August 1, 2002, from <http://www.m-w.com>
- Miller, M. (2001). Jon Boltax: At TV's inflection point. *Television Broadcast's DigitalTV*, 24(4), 33-34.
- Miller, M. C. (1990). End of story. In M. C. Miller (Ed.), *Seeing through movies* (pp. 186-246). New York: Pantheon Books.
- Mitchell, A. A. (1981). Dimensions of advertising involvement. In K. B. Monroe (Ed.), *Advances in Consumer Research: Vol. 8* (pp. 25-30). Ann Arbor, MI: Association for Consumer Research.
- Mitchell, A. A., & Olson, J. C. (1981). Are product attribute beliefs the only mediators of advertising effects on brand attitudes? *Journal of Marketing Research*, 18(August), 318-332.
- Morris, M., & Ogan, C. (1996). The Internet as mass medium. *Journal of Communication*, 46(1), 39-50.

- Nahl, D. (1996). Affective monitoring of Internet learners: Perceived self-efficacy and success. *Journal of American Society for Information Sciences*, 33, 100-109.
- Nebenzahl, I. D., & Secunda, E. (1993). Consumers' attitudes toward product placement in movies. *International Journal of Advertising*, 12(1), 1-11.
- Nelson, M. R. (2002). Recall of brand placements in computer/video games. *Journal of Advertising Research*, 42(2), 80-92.
- Neuman, W. R. (1991). *The Future of the Mass Audience*. Cambridge, MA: Cambridge University Press.
- Newhagen, J. E. (1998, July). *Hitting the agenda reset button for the Internet: The problem of matching research with development*. Paper presented at the International Communication Association Conference, Jerusalem, Israel.
- Newhagen, J. E., Cordes, J. W., & Levy, M. R. (1995). Nightly@nbc.com: Audience scope and the perception of interactivity in viewer mail on the Internet. *Journal of Communication*, 45(3), 164-175.
- Newhagen, J., & Rafaeli, S. (1996). Why communication researchers should study the Internet: A dialogue. *Journal of Communication*, 46(1), 4-13.
- Norris, C. & Colman, A. M. (1992). Context effects on recall and recognition of magazine advertisements. *Journal of Advertising*, 21(3), 37-46.
- Novak, T. P., & Hoffman, D. L. (1997). New metrics for new media: Toward the development of Web measurement standards. *World Wide Web Journal*, 2(1), 213-246.
- Novak, T. P., Hoffman, D. L., & Yung, Y.-F. (2000). Measuring the customer experience in online environments: A structural modeling approach. *Marketing Science*, 19(1), 22-44.
- Ohanian, R. (1991). The Impact of celebrity spokespersons' perceived image on consumers' intention to purchase. *Journal of Advertising Research*, 31(1), 46-54.
- Osgood, C. E., & Tannenbaum, P. H. (1955). The principle of congruity in the prediction of attitude change. *Psychological Review*, 62, 42-55.
- Paivio, A. (1986). *Mental Representativeness: A Dual Coding Approach*. New York: Oxford University Press.
- Pastore, M. (2000, December 22). Digital TV, t-commerce capturing consumer interest. *CyberAtlas*, Retrieved May 14, 2002, from http://cyberatlas.internet.com/big_picture/hardware/article/0,1323,5921_543651,00.html

- Pastore, M. (2002, January 23). ITV awaits prime time. *CyberAtlas*, Retrieved May 14, 2002, from http://cyberatlas.internet.com/big_picture/applications/article/0,,1301_959941,00.html
- Pavelchak, M. A., Antil, J. H., & Munch, J. M. (1988). The super bowl: An investigation into the relationship among program context, emotional experience, and ad recall. *Journal of Consumer Research* 15(3), 360-367.
- Pavlik, J. V. (1996). *New Media Technology*. Needham Heights, MA: Allyn and Bacon.
- Perry, S. D., Jenzowsky, S. A., King, C. M., & Yi, H. (1997). Using humorous programs as a vehicle for humorous commercials. *Journal of Communication*, 47(1), 20-39.
- Perse, E. M., & Ferguson, D. A. (1993). Gender differences in remote control use. In J. R. Walker & R. V. Bellamy (Eds.), *Remote Control in the New Age of Television* (pp.169-186). Westport, CT: Praeger Publishers.
- Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, 37, 1915-1926.
- Petty, R. E., & Cacioppo, J. T. (1980). Effects of issue involvement on attitudes in an advertising context. In G. G. Gorn & M. E. Goldberg (Eds.), *Proceedings of the division 23 program* (pp. 75-79). Montreal, Canada: American Psychological Association.
- Petty, R. E., & Cacioppo, J. T. (1981). Issue involvement as a moderator of the effects on attitude of advertising content and context. In K. B. Monroe (Ed.), *Advances in Consumer Research: Vol. 8* (pp. 20-24). Ann Arbor, MI: Association for Consumer Research.
- Petty, R. E., & Cacioppo, J. T. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research*, 10(September), 135-146.
- Petty, R. E., & Cacioppo, J. T. (1986). *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*. New York: Springer-Verlag.
- Petty, R. E., Cacioppo, J. T., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research*, 10(September), 135-146.
- Phillips, J. M., & Gully, S. M. (1997). Role of goal orientation, ability, need for achievement, and locus of control in the self-efficacy and goal-setting process. *Journal of Applied Psychology*, 82(October), 792-802.

- Pracejus, J. W. (1995). Is more exposure always better? Effects of incidental exposure to a brand name on subsequent processing of advertising. *Advances in Consumer Research*, 22, 319-22.
- Rafaeli, S. (1988). Interactivity from new media to communication. In R. P. Hawkins, J. M. Wiemann, & S. Pingree (Eds.), *Advancing Communication Science: Merging Mass and Interpersonal Processes* (pp. 110-134). Beverly Hills, CA: Sage.
- Rafaeli, S. (1990). Interacting with media: Para-social interaction and real interaction. In B. Ruben & L. Lievrouw (Eds.), *Mediation, Information and Communication* (pp.125-181). New Brunswick: Transaction Publishers.
- Rafaeli, S., & Sudweeks, F. (1997). Networked interactivity. *Journal of Computer Mediated Communication*, 2(4).
- Ratchford, B. T. (1987). New insights about the FCB grid. *Journal of Advertising Research*, 27(4), 24-38.
- Rice, R. (1984). New media technology: Growth and integration. In R. Rice & Associates (Eds.), *The New Media: Communication, Research, and Technology* (pp. 33-54). Beverly Hills, CA: Sage.
- Richins, M. L., & Bloch, P. H. (1986). After the new wears off: The temporal context of product involvement. *Journal of Consumer Research*, 13(September), 280-285.
- Rogers, E. (1986). *Communication Technology: The New Media in Society*, New York: Free Press.
- Russell, C. A. (1998). Toward a framework of product placement: Theoretical propositions. *Advances in Consumer Research*, 25, 357-362.
- Sawyer, Alan (1981), Repetition, Cognitive Responses and Persuasion, In R. E. Petty, T. M. Ostrom, & T. C. Brock (Eds.), *Cognitive responses in persuasion* (pp. 237-261). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Shaw, T., Arnason, K., & Belardo, S. (1993). The effects of computer mediated interactivity on idea generation: An experimental investigation. *IEEE Transactions on Systems, Man, and Cybernetics*, 23(May/June), 737-746.
- Shimp, T. A. (1981). Attitude toward the ad as a mediator of consumer brand choice. *Journal of Advertising*, 10(2), 9-15, 48.
- Singh, S. N., & Churchill, G. A. (1987). Arousal and advertising effectiveness. *Journal of Advertising* 16(1), 4-11.
- Soldow, G. F., & Principe, V. (1981). Responses to commercials as a function of program context. *Journal of Advertising Research*, 21(2), 59-65.

- Spalter, M. (1996). Maintaining a customer focus in an interactive age. In E. Forrest & R. Mizerski (Eds.), *Interactive Marketing: The Future Present* (pp. 163-188). Lincolnwood, IL: NTC Business Books.
- Srull, T. K. (1983). The impact of affective reactions in advertising on the representation of product information in memory. In R. P. Bagozzi & A. M. Tybout (Eds.), *Advances in Consumer Research: Vol. 10*. Ann Arbor, MI: Association for Consumer Research.
- Steuer, J. (1992). Defining virtual reality: Dimensions determining telepresence. *Journal of Communication*, 42(4), 73-93.
- Stewart, D. W., & Ward, S. (1994). Media effects on advertising. In J. Bryant & D. Zillman (Eds.), *Media Effects, Advances in Theory and Research*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Stroud, J. (2002). *Interactive advertising on the Sky digital platform?* Retrieved Aug. 15, 2002, from http://www.london.edu/marketing/Future/Future_Media_Events/FM_Presentations/Adrian_Stroud_pres_-_with_slides_deleted.ppt
- Sun Microsystems, Inc. (2001). *Java™ technologies for interactive television*. Retrieved Jun. 10, 2002, from <http://java.sun.com/products/javatv/whitepapers/TechInterTV052101.pdf>
- Swann, P. (2000). *TV Dot Com: How Television is Shaping Our Future*. New York: TV Books.
- Swedlow, T. (2000). Interactive enhanced television: A historical and critical perspective. *InteractiveTV Today*, Retrieved June 15, 2002, from <http://www.itvt.com/etvwp.pdf>
- Swedlow, T. (2002, August 19). InteractiveTV today – Newsletter (Issue 4.66). *InteractiveTV Today*, Retrieved August 19, 2002, from <http://www.itvt.com>
- Tabachnick, B. G., & Fidell, L. S. (2000). *Using multivariate statistics* (4th ed.). Needham Heights, MA; Allyn and Bacon.
- Tafarodi, R. W., Milne, A. B., & Smith, A. J. (1999). The confidence of choice: Evidence for an augmentation effect on self-perceived performance. *Personality & Social Psychology Bulletin*, 25(November), 1405-1416.
- Tavassoli, N. T., Schultz, C. J., II, & Fitzsimons, G.J. (1995). Program involvement: Are moderate levels best for ad memory and attitude toward the ad? *Journal of Advertising Research*, 35(5), 61-71.
- TechTrends, Inc. (2000, December 15). *TV-based e-commerce: An investigation of consumer interest, pricing and payment preferences*. Retrieved May 14, 2002, from <http://www.mindbranch.co.kr/report/print.asp?serviceid=r325-0004>

- Tedesco, R. (1996, Oct. 28). WavePhore, PBS using vertical blanking. *Broadcasting & Cable*, 126(45), 90.
- Turcotte, S. (1995). *Gimme a Bud! The feature film product placement industry*. Unpublished master's thesis, University of Texas at Austin.
- Vollmers, S., & Mizerski, R. (1994). A review and investigation into the effectiveness of product placements in films. *Proceedings of the Conference of the American Academy of Advertising*, 97-102.
- Weaver, D. T., & Oliver, M. B. (2000). *Television programs and advertising: Measuring the effectiveness of product placement within Seinfeld*. Paper presented at the Annual Conference of the International Communication Association, Acapulco, Mexico.
- Weinberger, M. G., & Spotts, H. E. (1989). A situational view of information content in TV advertising. *Journal of Marketing*, 53(1), 89-646.
- Weitz, B. A. (1978). Relationship between salesperson and performance and understanding of customer decision making. *Journal of Marketing Research*, 15(4), 501-516.
- Williams, F., Rice, R. E., & Rogers, E. M. (1988). *Research Methods and the New Media*. New York: The Free Press.
- Williams, F., Stover, S., & Grant, A. E. (1994). Social aspects of new media technologies. In J. Bryant & D. Zillman (Eds.), *Media Effects: Advances in Theory and Research* (pp. 463-482). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Wright, P. L. (1973). The cognitive process mediating acceptance of advertising. *Journal of Marketing Research*, 10(February), 53-62.
- Wright (1974). Analyzing media effects on advertising responses. *Public Opinion Quarterly*, 38(Summer), 192-205.
- Wu, G. (1999). Perceived interactivity and attitude toward Web sites. *Proceedings of the Conference of the American Academy of Advertising*, 254-262.
- Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, 12(December), 341-352.
- Zaichkowsky, J. L. (1994). The personal involvement inventory: Reduction, revision, and application to advertising. *Journal of Advertising*, 23(4), 59-70.

MICHIGAN STATE UNIVERSITY LIBRARIES



3 1293 02466 9453