Digital Television as Persuasive Technology

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Abstract. The advent of digital television technologies will rapidly expand viewer interaction with computer-mediated television. This paper reports on research demonstrating how new computer-mediated TV advertising models, including iTV microsites and telescopic ads, are superior to their linear counterparts. The authors argue that, in part, such superiority may result from the degree to which interactivity heightens mental engagement (facilitating a shift from peripheral to central message processing) and empowers viewer choice, thereby positively predisposing viewers to the persuasive content they encounter. The authors warn of potential negative fallout, however, where viewer expectations are not met. Although there might be potential 'distraction' effects associated with processing both video and interactive layered content, testing among college students demonstrated no adverse effects associated with such concurrent message processing. The opportunities associated with further research in this new arena of captology are explored.

1 Introduction

A wide confluence of factors including both channel and platform multiplication, audience fragmentation and the evolution of new audience metrics are ushering in a period of significant market disruption for the television industry. The advent of digital technologies, including digital video recorders (DVRs), internet protocol television (IPTV), interactive television (iTV), portable video (across iPods, mobile phones and a range of other portable devices), video-on-demand (VOD), high definition (HD) and digital television (DTV) are rapidly accelerating the industry's changing dynamic. As countries around the world increasingly mandate analog shut-off dates, facilitating a switch-over to digital television (for the US this date is set for 2009), public access to such digital platforms will expand dramatically. Although many dimensions of these new digital platforms capitalize on the traditional strengths of linear TV, the ability of such systems to facilitate user interaction and choice positions television's new frontier as perhaps another unique front among evolving persuasive technologies.

This paper draws on research supervised by the authors to explore how framing television's new frontier as a 'persuasive technology' may help better visualize new opportunities associated with the medium. The authors are currently engaged in a large research project exploring this theme further which has, as its sponsors, many of

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the world's leading advertising brands and media networks including the ABC, Coca-Cola, Comcast, DirecTV, ESPN, General Motors, Kelloggs, Kraft, McDonalds, Masterfoods/Mars, Microsoft, NBC, Nike, Procter & Gamble, Turner Broadcasting, TV Guide, Verizon, Visa, and Warner Bros. among others. Although the findings associated with this research are currently bound by non-disclosure obligations (part of an 18-month embargo), it is still possible to explore some of the research by drawing on post-graduate student research and other research conducted by the authors which is currently past the industry embargo period. This paper provides an overview of some of this research to date and concludes with an exploration as to how television's new frontier might be positioned as a unique persuasive technology. Just as captology can explore how computing affords advantages over human communication persuasion, so too can it explore how digital interactive television platforms facilitate advantages over traditional linear television persuasion.

2 New Persuasive TV Models

Although the advent of new digital technologies has generated considerable fear among those associated with the television industry, leading some to predict the demise of the 30 second commercial altogether [1], others have turned their attention to exploring new advertising models enabled by television's new digital character. The ID!As forum, facilitated by the Digital Media & Advertising Strategy Group (DiMAS), and Carat's Media Exchange both provide examples of collective industry initiatives designed to cultivate such models. DiMAS' Ad Lab has taken this further by bringing together advertisers, content providers and technology enablers to produce interactive simulations of many of these new ad models. Increasingly, moreover, digital platforms worldwide are deploying new advertising models capitalizing on the interactive characteristics of such digital platforms.

In the UK, for example, the Sky digital satellite platform has pioneered interactive TV ad models (iTV microsites) enabling viewers to press a red button on their remote control during a 30 second commercial to access additional advertising content, including sample requests, product information, interactive branded games and more. For the most part, such systems facilitate viewer interaction using either data carousels (which continually circulate the enhanced data layer) or hidden virtual channels (which viewers are switched to when they interact with the iTV application). More recently, Tivo introduced 'telescopic' advertising models whereby additional video content is pre-loaded into viewers digital recorders so as to be accessed (similar to a virtual channel) later (during ad breaks, for example) on demand. By late 2006, most US cable and satellite platforms, including Comcast, Cox, DirecTV, the Dish Network and Time Warner, had introduced a range of such new interactive TV ad models.

Unfortunately, however, research associated with these new interactive ad models remains largely proprietary and industry-based. Although several case studies of successful iTV applications have been published (e.g. [2], [3], [4]), few have compared the effectiveness of these applications against controls (i.e. linear TV). Where such control has been attempted, the environment has been unrealistic, relying

on computer screens in a desk-top environment rather than TV in a living room context [5], or in-home studies using 'two screens' (people interacting with their computer while watching TV rather than on interactive layers superimposed over the TV) designed to emulate iTV [6], [7].

To test the effectiveness of such new ad models, vis-à-vis traditional linear TV, we have conducted a series of experiments accommodating human subjects in mock-living rooms where they view our television treatments in an environment designed to more closely emulate the in-home experience. In this environment, we have tested a range of new ad models drawing on the key features of those iTV models most commonly deployed thus far. Our research has consistently found such models to be superior to their linear counterparts.

For example, in a study exploring interactive microsites (as pioneered by Sky in the UK) whereby viewers have the opportunity to access additional ad content on TV in the form of web-like pages, Bellman, Pribudi and Varan [8] found that ad recall associated with interaction with a single iTV ad was not only greater than a single linear ad exposure, but was on par with three repeat linear exposures – long considered the industry convention for minimum exposure [9]. Likewise, a study we conducted [10] exploring the effects associated with telescopic ads (additional video long-form advertising accessed on-demand during a 30-second ad) found that not only were such telescopic ads superior to their traditional 30-second counterpart in terms of attitudes towards the ad, brand and purchase intention (even controlling for self-selection effects), but they were also superior to the long-form ads themselves. In other words, the telescopic ads deliver superior effects that cannot be explained on the basis of the additional content exposure alone.

Accordingly, there is a need to explore the superior effects associated with television's new digital frontier to better understand not only *whether* they are more effective (as asserted here), but more importantly, if so… *why*? Here, perhaps, a new strand of the captology discourse may lend insight.

3 Cognitive Engagement

Mental engagement with program content is often a central objective associated with television viewing. Those who produce programs and those who advertise make implicit assumptions regarding the extent to which viewers 'attend' to their television content. With television viewing becoming part of an increasingly diverse and complex media landscape, TV viewing is progressively becoming more polychronic, with viewers engaged in concurrent tasks while they watch, including internet surfing, reading and talking. Given this context, does interactivity improve mental engagement with program and advertising content?

One might assume that a central characteristic of interactivity is that, by its very nature, it increases viewer engagement. Every time a viewer presses a button on a remote control, she is engaging with the content in an active mental state. One potential benefit associated with iTV, therefore, is a capacity to increase viewer involvement as a result of the interaction facilitated between viewers and their remote controls.

To test this proposition, Yeo [11] developed interactive TV ads for both high involvement (Acer Computers) and low involvement (Oreo cookies) products. Subjects were divided into two cells: a control cell which saw linear non-interactive executions of the two ads and a treatment cell exposed to the two interactive ads. The interactivity in the ads was identical in style to that dominant in the UK at the time; that is, a viewer pressed a red button on their remote control during the ad in response to a call-to-action banner, which then took the viewer to a television microsite (walled garden) with web-style content associated with the product. The Acer ad provided product information whereas the Oreo ad allowed viewers to create the Oreo cookie best suited to their taste.

The central focus of the research was on *cognitive elaboration*; the degree to which viewers think about the ads and relate them to their lives. Greenwald and Leavitt [12] maintain that such elaboration constitutes the highest of four levels of ad message involvement (preattention, focal attention, comprehension and elaboration). Such elaboration is measured by having subjects list all thoughts related to the content of the ad and having researchers independently code such thoughts for the type (central vs. peripheral) and intent (positive, negative, curiosity and neutral) of thoughts as well as for the presence of elaborations [13].

For both the high and low involvement ads, the impact was dramatic. Interactivity had resulted in a significant increase in cognitive elaboration ($p < .0001$) – in fact, such elaboration had almost doubled! There was also strong evidence of a shift from peripheral to central message processing. There was clear support, therefore, for the assumption that iTV increases the degree to which those interacting engage with the content.

Surprisingly, however, such elaboration did not necessarily translate into higher ad impact. Although there was a higher degree of elaboration as a result of interacting, the advertising effects differed between the two ads. With the Oreo interactive ad, the increased elaboration did translate into a significant increase in the favorability of attitudes towards the ad, brand and purchase intentions. But in the Acer ad, there was no significant impact. We have observed similar trends in data associated with campaigns deployed over interactive television platforms: in some cases, the results are spectacular – in others quite disappointing. Indeed, interactivity appears to amplify media effects. How can this be explained?

The qualitative component (unreported) of this research suggested that in the case of the Oreo ad, viewers got more than they expected. They went into the interactive microsite with low expectations and were pleasantly surprised. This translated into a new-found passion for the brand. In the case of the Acer interactive ad, however, viewers went in expecting detailed information about the product range, only to be disappointed by the limited range of information available. Viewer expectation, therefore, may potentially be a key moderator of the interactive television viewing experience.

Beyond the issues associated with such expectation delivery, however, the increase in elaboration itself may partially explain the effect. Studies in psychology have long demonstrated that merely thinking about a subject polarizes attitudes [14]. Other studies have also demonstrated that strong elaboration can result in counter-arguing, making viewers increasingly critical of the content they are exposed to [15]. Although

our study was largely exploratory in nature, it suggests that iTV content will tend to polarise audience satisfaction – raising the stakes, so to speak, as a result of its higher viewer engagement. Interactive TV content, therefore, potentially delivers greater impact as a result of heightened engagement, but this also comes with a high degree of risk, delivering strong returns when resonates content effectively with viewer expectations, but potentially damaging the viewing experience when these expectations are violated.

As a result of these findings, we propose that the shift from peripheral to central message processing could well be a characteristic associated with the sensory dimension of computer-mediated television [16]. Our research suggests that, when compared to linear TV, interactive TV amplifies and polarizes existing attitudes. This makes it all the more important to engage in audience research in advance of content deployment as there is higher potential fallout associated with failure to meet consumer expectations. It also demonstrates, however, how such platforms afford potentially superior environments for persuasive content where viewer expectations are either met or, ideally, surpassed.

4 The Power of Choice

Our cognitive engagement study left us questioning the expectations with which viewers initially encounter iTV ad content and led us to speculate that the element of viewer choice might positively predispose viewers to the content they encountered. Although such choice created a potentially positive bias initially, we assumed, there appeared to be dire consequences where expectations were violated given the viewer's greater investment of self (potential ego-effects).

Specifically, we assumed that choice potentially generates dissonance. As a result of such dissonance, a range of dissonance-reduction behaviors might then influence attitude formation. In turn, dissonance-induced subjects may seek to internally justify their decisions. Accordingly, we hypothesized that viewers experiencing dissonance would more actively search for cues to reinforce that their decision was right. This, we believed, would increase with higher levels of dissonance reflecting a higher need, on the part of the viewer, to justify (internally) that their decision was correct.

To test this possibility, Tanjic [17] conducted an experiment manipulating levels of cognitive dissonance associated with viewing choice. Viewers were randomly allocated into three cells: a control cell with no interactive content; a treatment cell experiencing 'low-level' dissonance; and a treatment cell experiencing 'high-level' dissonance. The two treatment cells were exposed to a television program with a novel twist whereby for the last ad in the ad break, the viewer was presented with an on-screen choice between three different product categories. In other words, viewers were forced to choose the ad they wanted to see. In some cases, this choice was easy (low-level dissonance) because the choice involved a compelling category paired against two non-compelling product categories. For others, however, the choice was made more difficult (high-level dissonance) because all three product categories had equal appeal. In this way, the study could triangulate between the effects of both interactive versus non-interactive advertising and high versus low-level dissonance. It is important to note that Tanjic's experiment, like most other such studies [e.g., 18], did not control for the presence of

such dissonance at an individual level. Rather, she pre-tested ads for their levels of appeal and involvement and used these measures for the manipulation of dissonance. Accordingly, a range of theoretical constructs might also account for the study results. Nonetheless the study helped us to explore the broader issue of the potential effects associated with viewer choice.

Interestingly, there was no difference between the non-interactive (control) and low-level dissonance conditions. However, the high-level dissonance treatment resulted in a significant increase in attitude towards the ad, brand and purchase intention (all measures comparing high-level dissonance with either low-level dissonance or no choice relative to these indices had p values less than .01), validating the assumptions upon which the study was based. In other words, the interactive TV platform facilitated a positive bias to the ad content for viewers experiencing high levels of dissonance. Interactive TV, under these circumstances, was demonstrated to deliver a more positive ad viewing environment – an important consideration for advertisers given the largely defensive nature of TV ad viewing.

This might suggest that another dimension associated with understanding how linear and interactive TV platforms differ might focus on the potentially positive characteristics of meaningful choice, which may positively bias viewers to the persuasive messages they then encounter. Clearly, the dimensions associated with choice transcend those explored here. Hopefully, however, the study helps highlight the need to better understand how computer-mediated television may differ from its linear counterpart, suggesting a need for further research in this area.

5 Distraction

It is important, however, that our exploration of television's new frontier not limit itself to potential positive effects alone. In many ways, such interactive platforms may be inferior to their linear counterparts. One potential area where such inferiority may be apparent is in potential distraction effects associated with competing cognitive load as viewers attempt to process both linear video content and interactive enhancements.

As noted earlier, however, viewers are increasingly engaged in a wide range of concurrent tasks while viewing traditional television. Recent research at Ball State University has highlighted the degree to which viewers are talking on the phone, surfing the internet, reading magazines, talking with others and engaging in a wide range of other tasks as they watch television [19]. The additional layers of interaction embedded in new television program content, however, may further introduce distraction effects resulting in lower, rather than higher persuasive effects.

A number of our studies to date have attempted to isolate the potential effects associated with divided cognitive load so as to better understand audience message processing. While this is often a key issue, potentially challenging viewer engagement, younger audiences appear to have a high propensity to process multiple sources. In one study, conducted by Bollig [20], we tested an ad model deployed by MTV in the UK whereby game content ('pong') was superimposed over an entire ad pod to encourage

viewers to stay on the channel during the ad break. We manipulated speed of play and ad message content to test for potential 'distraction' effects across diverse viewing contexts.

Although the MTV 'game over ad break' model was successful in the UK in reducing channel zapping when it deployed in 2002, it was ultimately taken off air due to advertiser concern with potential loss of ad impact due to divided ad message processing. Instead, it was transformed so as to be superimposed over program content (pausing the game during ad breaks). Surprisingly, questions associated with ad impact in the 2002 version (game over ad break) were never tested empirically by either the advertisers or MTV. The new model was always treated as a trade-off: lower ad avoidance (by holding the viewer over the ad break) but at the cost of potentially lower ad impact (resulting from the distraction of the game). This assumption of reduced message processing capacity is consistent with one school of thought regarding distraction and ad impact (beginning with Haaland & Venkatesan [21]).

An alternative perspective, first explored by Festinger & Macoby [22], however, maintains that people's capacity to counter-argue is diminished through distraction effects, lowering their defenses to persuasive message content (thus maximizing impact). Under this assumption, certain ads appearing during the MTV game over ad model should have been more, rather than less, persuasive. Zimbardo, et al [23] tested a proposition remarkably similar to the MTV game over ad model years before interactive TV systems enabled the deployment of such a model. In their study, the Zimbardo research team provided subjects with a number summation task during ad breaks. Consistent with Festinger & Macoby, they found that persuasive impact was enhanced by this distracting task. Clearly, if the superiority of such models work due to this assumption, there might be a need for codes of practice or government regulation to curtail potentially adverse and/or unethical persuasive communication that relies on such cognitive overload for its effects.

To our surprise, our study found that despite the target population (college students) engaging with the game content enthusiastically, their capacity to process the 'background' ad was not distracted, resulting in ad impact statistically on par with control measures of traditional 30-second ads. This was not moderated by either speed of play or counter-arguing. In other words, there was neither evidence of a negative capacity to process ad-message content, nor was there support for superior effects due to diminished counter-arguing. This suggests that advertiser concern regarding the potential detrimental impact associated with ad message processing may have been unfounded. Far from representing a trade off, the model may have produced higher ad pod exposure without coming at the cost younger audiences, in particular, have a strong capacity to multi-task when consuming television content. It is important to note that as the study was conducted using university students only, the capacity of older audiences to attend to such parallel content remains untested.

Hence, although interactive of reduced impact. We believe this highlights the extent to which television technologies may present viewers with increasing demands for their cognitive load, our evidence suggests that viewers (at least young viewers) are able to manage this increased load effectively.

6 Key Directions for Future Research

The television industry is in the midst of a dramatic period of market change. Its transition to a digital future suggests that computer-mediated persuasion will become a growing area of research. Tragically, despite the rapid deployment of new ad models capitalizing on the new technology, academic research on the subject remains sparse. With few exceptions, the academic sector has largely failed to engage with television's shifting landscape. Academic publications seem to either be framed within a viewing context that seems more characteristic of the 80s than television's new frontiers or result in research which reduces the future to the internet alone, failing to appreciate the complex manner in which people are weaving digital technologies into their regular media diet.

Clearly, captology has much to contribute to the evolving discourse. This paper has summarized the results from our earlier research demonstrating that such models are superior to their linear TV counterparts. The more important question, however, is *why* are such interactive TV models superior? What theoretical frameworks best explain such superior effects? How might we explore the new television's capacity to persuade, whether as tool, medium or social actor?

Here, we hope to contribute to this dialog by suggesting potential moderating effects associated with heightened mental engagement (with interactivity facilitating a shift from peripheral to central message processing) and potential positive biases associated with choice. We have also found that despite fears that viewers are unable to process both video and interactive content, the evidence suggests that at least young viewers are able to concurrently process such content.

We hope that our research, though specific to television's evolving landscape, might also contribute to the wider captology discourse, highlighting new directions to further explore how computer-mediated communication facilitates new persuasive opportunities. One might assume that heightened cognitive engagement and positive choice bias might be inherent characteristics associated with computer-mediated communication. Research designed to explore such questions across other digital environments might help shed further light on this possibility.

For researchers, this is an exciting time. As the television industry grapples to define its new business, we have a unique opportunity to influence the evolution of ad models which may shape the contours of the industry for years to come. Certainly, one would hope that such engagement by the academic fraternity might results in business models which are more ethical in character and which respond better to the needs of viewers.

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