

DOES SEX REALLY MATTER? THE COGNITIVE AND EMOTIONAL EFFECTS
OF SEXUAL EXPLICITNESS IN VIDEO ADVERTISEMENTS

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OF SEXUAL EXPLICITNESS IN VIDEO ADVERTISEMENTS

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ABSTRACT

The purpose of this study was to examine how variations in explicitness of sexual visual imagery in video ads impact the way young adults cognitively and emotionally process advertising. Experimentation included a psychophysiological assessment of skin conductance and heart rate, as well as self-report measures. Skin conductance was used to measure arousal while heart rate measured cognitive resources allocated to encoding, or attention. Self-report measures covered brand recognition, arousal, likeability, pleasantness and unpleasantness. Physiological results were significant for arousal and attention change over time, with moderate sexual explicitness earning the highest skin conductance and heart rate levels. Brand recognition, however, was greatest for low sexual explicitness. These results suggest to advertising industry specialists that, while sex has the ability to increase arousal and attention of consumers, it doesn't necessarily increase brand awareness.

Chapter 1: Introduction

The purpose of this research was to determine how young adults (18-24) process and respond to sexually explicit imagery in video advertising. Sexually explicit imagery in advertising was conceptualized in this study as visual content featuring nudity, physical contact and sexualized images of the body. Although research has been conducted to determine audience attitudes toward sexually explicit ads, there has yet to be a study exploring how young adults process ads that vary in sexual explicitness. And because the 18 to 24 year old market maintains so much purchasing power, it is of utmost importance to determine how this demographic processes sexual explicitness. Future research can use results from this study to form comparative analyses that look across generations of viewers to determine the differences in processing responses to the same question.

In the 1850s, advertisers for tobacco companies plastered images of naked women on their product crates to differentiate themselves against their competitors (Goodrum & Dalrymple, 1990). Sexuality was used because it was novel— exciting and bold. While it is not always used in innovative ways, sexual imagery continues to interest audiences. The use of sexually explicitness has only increased since tobacco companies first used nudity in the 19th century to push products and draw attention (Reichert & Lambiase, 1999). This increase in sexual imagery in advertising, coupled with the advent of the Internet has created a unique sex and media environment for today's young adults.

Today's 18 to 24 year old market is exposed to more sexualized ad content, as well as a greater volume of sexually driven ads on television, than any other age bracket. Young adults, as a result, are more accepting of sexual content. Reichert (2005) found this generation to be more likely to purchase products pitched with sexual imagery. This sexualized environment in the media has made it easier for young people to both consume and create sexual content. By the time young adults turn 18, 90 percent of boys and 60 percent of girls have been exposed to pornography (consuming content) and one in five teens have received a "sext", a sexually suggestive text message (creating content)(*Pornography Statistics: Annual Report 2015*, 2015). For a generation that is constantly interacting with the media online and on mobile devices, it is easy to be exposed to sexual content. Because of this inundation of sexualized ads on young people, it is important to study the effects of this type of material on this group of people—whether it is effective in establishing advertisement interest and brand recall, and how 18 to 24 year olds react and respond to the ads. In addition, it is critical to learn what it is that young adults take away from advertisements to gain information on a product.

This study aimed to determine how young adults (18-24) process and respond to sexual visual imagery in advertising. The research question for this study was: How does variation in the explicitness of sexual visual imagery in video ads impact the way young adults cognitively and emotionally process advertising?

Previous research has been completed to better understand the subject, but the results are inconclusive. This study intended to further advance research in this field by examining the effects of varying levels of sexual explicitness on the young

adult market through psychophysiology, a research method examining participants' physiological responses to stimulus. There has been no experimentation of this kind on 18 to 24 year olds to the researcher's knowledge. This study sought to establish baseline information on the human cognitive and emotional processes in responding to advertisements. Psychophysiological measures were used to index arousal and cognitive resources allocated to encoding in an effort to discover deeper level insights into the effects of sexual explicitness on young adults. Arousal and cognitive resources allocated to encoding are at the very foundation of observing the effects sexual explicitness might have on the 18 to 24 year old market. Because self-report measures are incapable of capturing the real time variations in cognitive and emotional responses, this makes psychophysiology the ideal research method. Results will then provide future researchers with a better understanding of the young adult market while providing footing to expand and explore the effects of advertising on other age groups.

Psychophysiological measures were used to observe real-time cognitive and emotional processes that are engaged when individuals process media in this study. The insights from this will provide advertisers with helpful insights into the young adult market's cognitive and emotional reactions to sexually explicit video content. As sex is constantly used to promote a wide variety of products, it is important to understand how young adults process information and how it influences their purchasing behaviors.

This study employed a 3 (Sexual Explicitness) x 3 (Advertisement) x 27 (Time) repeated measures experiment to assess the effects of sexual visual imagery

on young adults. Participants viewed low, moderate and high sexually explicit ads. Subjects answered a series of self-report questions following each ad measuring their attitudes toward the commercial they just viewed. At the end of the study, participants completed a speed recognition test to determine which brands were encoded into participants' long-term memory.

Chapter 2: Literature Review

Sex Appeal in Advertising

“Does sex sell?” Advertisers have been asking this question for over one hundred and fifty years. While it does not always hit the mark, when used effectively, companies have been able to use sexual explicitness to catapult a product in sales.

History. In the 1850s, tobacco companies used images of scantily clad women to stand out against competitors’ products (Goodrum & Dalrymple, 1990). Since then, sexualization in advertising has increased because advertisers believe the power of sex will persuade more customers to purchase products (Reichert & Lambiase, 1999). In this research, Reichert and Lambiase examined the evolution of sexualized content through magazine ads. Their results showed that, over time, content has displayed greater rates of sexuality. Women and men were both more likely to be dressed in explicit attire in 1993 than compared to ten years previous.

While sex itself has varied in explicitness over the years, the intent has always been to gain attention and motivate consumers to buy (Avery, 2000; Leka, McClelland, & Furnham, 2013; Parente, 2000; Reichert, Heckler, & Jackson, 2001). In their study on ad memory, Leka, McClelland and Furnham wanted to explore sexualized content. Their research revolved around the influencers of memory retention. Specifically, Leka et al. wanted to know if audiences remembered explicit content and, if so, what factors influenced their memory (e.g. television program content). They found sexual ads were both better recalled and recognized than nonsexual ads in a sample of 58 women and 34 men, whose mean age was 20.14

years. In their study on the effectiveness of sex appeal in PSAs, Reichert, Heckler and Jackson (2001) found that sex appeals result in more “execution-related thoughts” than non-sexual appeals, meaning sex makes people more willing to think about helping a cause. This shows that, if used appropriately, sex can lead to meaningful results in processing and responding to a message.

The early days. In 1910, Woodbury Facial Soap was about to go under because the product was not selling. Things changed when the company released an advertisement featuring a couple engaged in a romantic embrace (Account Histories, 1926). By today’s standard, the image would hardly be considered risqué, but the visuals were exciting enough to get people looking. When consumers started seeing this soap as a conduit to improve their own romantic endeavors, they became more eager to test the product, therefore improving sales and reviving the dying company.

Similarly, when Elliott Springs inherited Springs Cotton Mills, the company was drying up. Between 1931 and the end of World War II, Springs rejuvenated the company by using “racy images and innuendo-laced text to catapult his struggling cloth business to prominence” (T&D, 2013). The sexual nature of the advertisements coupled with the controversy surrounding the campaigns generated great sales for the textile company. Sex sold.

And finally, after the Dallas Opera marketing team realized they were not bringing in throngs of guests with the sopranos’ arias, the organization altered its marketing strategy. By promoting the more seductive aspects of the theater, the performing arts center was able to bring sales to a crescendo. While advertising professionals and consumers often scoff at the use of sex to promote products, the

evidence shows that it has the potential to grab attention, as seen in Miller Light's satirical ad.

Poking fun at the advertising industry's excessive use of sexuality to gain attention, the beer company released a commercial in 2003 entitled "Catfight." In it, a fight breaks out when two beautiful women, seated together at lunch, begin arguing over the greatest aspects of Miller Lite. The dispute quickly escalates as the duo rips each other's clothes off and wrestles into a fountain. The scene then shifts to a pair of young men discussing how great an ad like this would be. Viewers get the idea that the catfight was conjured from the combined imaginations of the two men. While it is an overt use of sex, the spot demonstrates how far companies will go to engage audiences, in this case young males, with their product (Chura, 2003).

Interestingly, evidence suggests that sexual exploitation of models relies greatly on the model's sex. Reichert and Lambiase (1999) discovered that, in advertisements, women were three times more likely to be dressed in sexually explicit clothing compared to men. Their research also showed that, although women are depicted more sexually, at the end of a ten-year period, men became positioned more explicitly than a decade prior. So while women are still displayed more provocatively, men are beginning to be sexualized as well. Advertising is evolving to involve more sexual content as a result of sex's increasing prevalence in our lives. This transformation is the result of the changing cultural values of the current society.

Today. Sex in advertising is everywhere. Ads "are more overtly expressive about thoughts of sex and sexual situations than ever before" (Kelsmark, Dion,

Abratt, & Mischel, 2011, p. 117). This means that society has become more accepting of sexually explicit content over time. This is directly related to Reichert and Lambiase's research, which showed an increase in sexual explicitness (as previously touched on in this chapter). As a result of this overexposure to sexualized content in the media, scholars such as Reichert (2003) believe younger audiences are becoming desensitized to the "shock value" of these ads. In his 2003 study, Reichert also found that sexual advertisements make a majority of the general population (61 percent) feel negatively toward a product. In contrast, young adults reported that 44 percent of the time, sex in advertising makes them more likely to purchase. Knowing this, advertisers readily hit the young adult market with more sexual explicitness in advertising (Reichert, 2003). Reichert's content analysis showed that, overall, ads targeting young adults are 65 percent more likely to present models dressed sexually than ads targeting mature adults. But why is that?

In a short article written by Reichert, he found that so much advertising targets young adults using sex because it is a new concept to budding consumers (2001). Sexualization of content targeted to consumers begins during late adolescence. As illustrated in Reichert's article (2001), sexual explicitness is new to this young demographic and because newness is more intriguing, it captures adolescent attention. Finally free from ads featuring Tonka trucks and Barbie dolls, this market joins the world of grown ups and sex. But targeting is not always equal on both sides of the male-female aisle in many ways because men are often more responsive to sexual advertisements than other ads.

Leka and a team of researchers worked to determine how consumers remember different types of advertisements (2013). They found that, while sexual ads target both men and women, the results for males were particularly interesting for industry specialists; the research showed that men remembered sexual ads more than non-sexual ads. Women, on the other hand, remembered both sexual and non-sexual ads equally. As a result ad agencies and professionals utilize sexually explicit advertisements more often to promote products to men than non-sexually explicit ads. More, too, than products targeted at women, as seen in Reichert and Lambiase's magazine study (2003). While these two studies help lead to similar conclusions, it is important to remember that each study maintains its own parameters and definitions of sexuality.

In Reichert's 2002 review, he measured content on television and in magazines with the following variables: behavior, context or embeds, and symbolism. He noted that in different studies, he would use different variables to measure sexuality to see how they each influence responses. LaTour (1990), on the other hand, examined the effect of levels of dress on print advertising according to the ordinal categories that measure levels of sexuality—demure, suggestive, partially clad and nude—established by Soley & Reid (1988). While Reichert created his own definitions of sexuality, LaTour used another researcher's breakdown in order to complete his study effectively. Whether creating a new set of parameters or using someone else's, it is important to use dimensions that make sense in the research and are used consistently throughout the study.

An entirely new set of parameters was developed for this study because of the emphasis on video advertising. Sexual explicitness was defined through a five-dimension coding scheme: time, clothing, sexual acts, body focus and visual depiction of undressing. These dimensions are explained in full detail in the methodology chapter, with a full description of the coding instructions and definitions included in Appendix A. Once each ad was coded, the total scores of all advertisements were then compared against each other and ranked from least to most sexually explicit.

Effects of Sex Appeal

Sex has the power to be impactful in the realm of advertising when used appropriately. It can grab attention and arouse consumers. But now the question is, are consumers actually remembering the brands?

Leka et al., (2013) found sexual advertisements to be better recalled and recognized than non-sexual advertisements. In another study, the team also found men to remember sexual ads more than non-sexual ads (1995). Other authors have also found sex to be an effective way to pitch products. Belch et al. (1981) conducted a skin conductance test and found sexual ads to be effective at grabbing audiences' attention.

Bushman (2007), on the other hand, found that sexual advertisements garnered 21 percent *less* brand recall in neutral programs than sexual programs. In the same study, "sexual ads were no more memorable when embedded in a sexual program" (Bushman, 2007, p. 1792). Regardless of the programming, it seems from this study, consumers are less likely to remember sexy content. Similarly, Reichert

et al. (2001) found that, although sexual content increases attitude and purchase intention, it reduces consumers' ability to remember the product or message.

The preceding review of history and inconsistent effects of sexual imagery point to the importance of research on this topic systematically. Combined, these studies demonstrate that "the effects of [sexual] appeals are poorly understood and may often be counter-productive" in producing conclusive results (Kelsmark et al., 2011, p. 117). Therefore, more exploration needs to be conducted to better understand the effectiveness of sex in advertising, especially to young adults who are wrapped in a unique media experience involving sex.

Unique Sex and Media Environment of Young Adults

Young adults face a much different media environment today in terms of sex than any other group. There are more sexual ads and an even higher rate of sexuality within ads (Reichert, 2003). Reichert (2011) found that young adults are more than twice as likely than other age groups to view ads targeted toward them featuring sexually portrayed models.

Targeting young people with sexually explicit content is effective because of its novelty to this group of people (Reichert, 2001). Young people have not been targeted with sexual advertisements as children, so when advertisers first draw them in with sexual content, it influences young adults to believe the product equates to the promise of sex (Reichert, 2001). While it is an effective sales pitch on new markets, this tactic has been criticized because it persuades young adults that a product can improve their sexual draw (Boddewyn, 1991) and instructs young people to be more sexual (Reichert, 2001). It is important for researchers to study

whether or not sex is still an effective strategy when the audience reaches young adulthood.

Young people are more accepting of sexual content in advertising than other groups (Reichert, 2005). Understandably, considering each generation has been exposed to a greater volume of sexuality as each decade goes by. Reichert (2005) believes that, because of their more liberal values, young adults have been able to embrace their own sexuality. When you have more awareness of the sexual environment around you, it is easier to express your own sexuality and discuss the topic more freely.

Combined, this has created a unique sex and media environment for young adults because they are able to both consume and create sexual media content. 93 percent of adults between 18 and 29 years old own a cell phone. At the same time, teens and young adults are consistently the most likely to go online (Lenhart, Purcell, Smith, & Zickuhr, 2010). For these younger generations, information is coming in faster and more immediately. When you want something, you can get it in one click.

This notion of feasibility is evident through the enhanced access to sexual ads and pornography. Porn websites generate 450 million unique visitors each month while accounting for about 30 percent of all internet traffic ("Porn Sites Get More Visitors Each Month Than Netflix, Amazon And Twitter Combined," 2013). The statistics are all the more poignant with young adults. Within young adult males, 70 percent visit porn sites each month (Chen, 2010). But how does this transmit to the rest of this unique environment?

Social media has transformed the landscape of young adult culture. It has not only changed the *way* this generation communicates, but *who* they communicate with. Before this millennium, no one would be able to say, “I have a thousand friends”, but with Facebook, that is almost the standard. This social media phenomenon has spread, so now, instead of simply connecting friends, it provides a network for young adults to easily find other individuals who want to date or simply hook up, or casually have sex.

Promiscuity is not a new concept. The hookup culture has been around for hundreds of years. However, the hookup culture has “collided with dating apps” creating an entirely new category in the realm of casual sex (Sales, 2015). In a long-form article in *Vanity Fair* on the effects of the dating app Tinder, Nancy Jo Sales quotes Justin Garcia, a research scientist at Indiana University’s Kinsey Institute for Research in Sex, Gender and Reproduction, saying:

There have been two major transitions [in heterosexual mating] in the last four million years. The first was around 10,000 to 15,000 years ago, in the agricultural revolution, when we became less migratory and more settled.

And the second major transition is with the rise of the Internet. (Sales, 2015, para. 16)

The evolution of sex is changing the way young people interact (Sales, 2015). Through the mobile Internet alone, a 20 year old man can watch porn on one app then, within seconds, switch to a dating app and ask a girl if she wants to have sex. Media usage today is vastly different than even 10 years ago.

The presence of sexual images in advertising is merely a reflection of the daily and frequent access to sexual content through everyday platforms such as the Internet, social media and television. Information and exchanges are more direct; gone are the days of politely elusive language used by previous generations. These changes create a unique social environment for young adults. They are numb to the shock value of sexualized content as a result of this over-exposure. With this in mind, it is important to explore the effectiveness of sexually explicit advertising in generating product awareness and purchase intent for this demographic.

Processing and Responding to Sexual Imagery

The objective of this study is to determine how young adults process and respond to sexual visual imagery in advertising. The theoretical model that serves as the base for study is Annie Lang's Limited Capacity Model of Motivated Mediated Message Processing model (LC4MP)(Lang, 2009).

LC4MP model. Working under five basic assumptions, the LC4MP is centered on the belief that humans have a limited number of cognitive resources that can be allocated to completing cognitive functions (i.e., memory encoding, recall and retrieval) at any given time. Encoding is conceptualized as creating a mental representation of incoming information. Storage takes the encoded information and creates a long-term representation of that information. Finally, retrieval occurs when activating the stored, encoded information (Lang, 2009). The LC4MP is used to predict "real-time interactions between any mediated message and the human information processing system" (Lang, 2009, p. 194). It is also an effective model because it provides the most "true" measure of a human's response to sexually

explicit content. With traditional methods, participants are able to alter their responses based on what they believe is correct or most acceptable.

Connected to this concept are the appetitive (approach) and aversive (defense) systems. They are motivational systems that have evolved over time to help humans react to various situations in order to survive. The two systems are connected to positive (appetitive) and negative (aversive) stimuli. In essence, they help the body react to and understand situations. Depending on the stimuli, resource allocation will vary. For appetitive stimuli activation, resource allocation depends on the amount of resources dedicated to encoding and storage. With aversive stimuli activation, however, more resources are dedicated to the onset of danger. This helps humans better analyze the situation in which they are in. After the onset, however, the number of resources dramatically decreases.

To measure cognition, the LC4MP model uses biological sensors connected to different biological variables to measure arousal, attention and response. In this study, arousal is used to measure how calm or exciting participants find the content they view. To effectively and biologically determine arousal levels, researchers use skin conductance, which are connected to the eccrine sweat glands, located in the palm of the hand or soles of the feet. These glands are connected to emotional experiences and are activated with arousing material (Potter & Bolls, 2012).

Hypotheses. To test the research question of this study, three separate hypotheses were established. Their intention was to determine the effects sexually explicit advertisements had on participants' arousal and attention levels, as well as recognition of advertisement brands.

Arousal. Today, it is easier than ever to avoid advertisements with technological advancements of DVRs and advertisement skip buttons online. To get their messages to stick, ad agencies have to get creative. Because sexualized content has been traditionally used to engage audiences with the feeling of excitement, it is the belief (or hope) that such content will be engaging enough to continue watching. With young adults exposed to sex more than ever, it is worth exploring whether or not this explicitness excites this market or if the message is falling flat.

For this study, heterosexual males and females were presented with varying degrees of sexual visual imagery in order to examine the effects of explicitness on young adult audiences. Prior to experimentation, it was predicted that skin conductance would be greatest for high sexual explicitness followed by moderate explicitness. Low sexual explicitness, it was predicted, would produce the least amount of skin conductance. The sweat glands in the palm of the hand are associated with emotional sweating, which is activated when an individual is exposed to more exciting stimuli (Potter & Bolls, 2012). Because highly explicit ads are associated with higher levels of excitement, the hypothesis is expected to be expressed linearly.

H1: High visually explicit advertisements will generate the highest levels of arousal followed by moderately explicit then low explicit as evidenced by increased skin conductance.

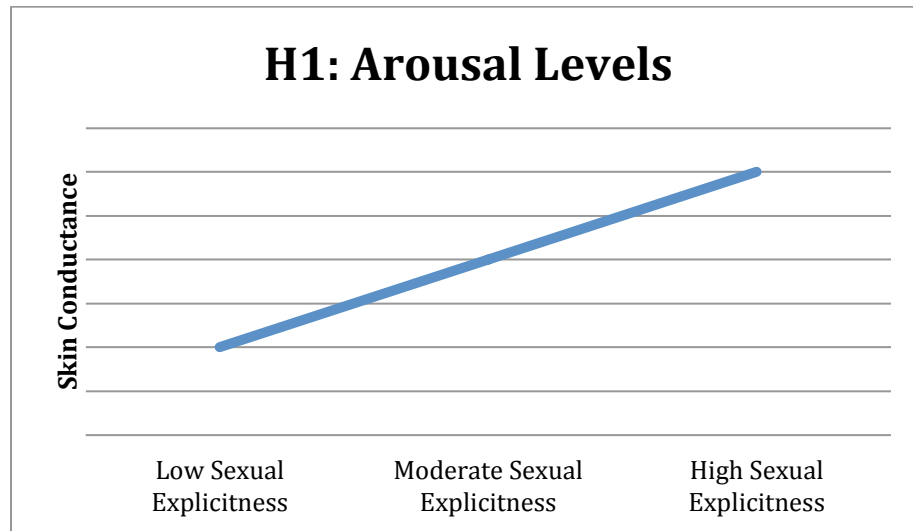


Figure 1. The predicted effect of sexual explicitness on skin conductance levels.

Attention. Without consumers paying attention, no matter how good the message is, the ad will fall flat. Because advertisers believe sex is a good way to increase consumers' attention (Belch et al., 1981), it is important for this study, and for the advertising industry to explore whether or not people in the 18 to 24 year old market actually pay attention to ads with varying degrees of sexual explicitness.

Heart rate as it relates to cognitive resources allocated to encoding is related to the parasympathetic nervous system (PNS). This system kicks in when the body is at rest; therefore heart rate slows down (Potter & Bolls, 2012). The PNS is associated with such stimuli as sexual arousal and urination. The more at rest, the greater amount of cognitive resources that can be allocated to encoding. This theory is used to support the following hypothesis: moderate sexual explicitness would produce the greatest amount of cardiac deceleration with low explicitness generating the least cardiac deceleration. High sexual explicitness was expected to be between moderate and low. As heart rate is also connected to arousal through

the sympathetic nervous system, high sexual explicitness was not expected to show highest levels of cardiac deceleration. However, because moderate sexual explicitness still includes sexually explicit images, it was predicted to result in the greatest cognitive resources allocated to encoding.

H2: Moderate visually explicit advertisements will evoke the highest levels of cognitive resources allocated to encoding followed by highly explicit then low explicit as evidenced by cardiac deceleration.

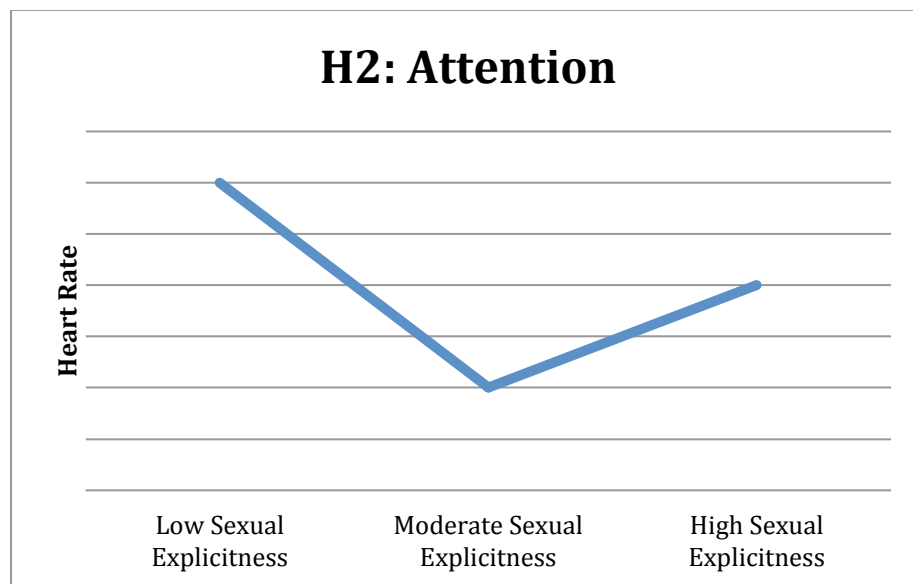


Figure 2. The predicted effect of sexual explicitness on heart rate.

Brand recognition. Recognition of ad content was expected to be greatest when the advertisement was moderate visually explicit. Brand recognition is the self-report measure associated with the physiological measure collecting data for attention. Because of that association, a parallel relationship was expected in the results for attention and brand recognition. Ads in the moderate sexual explicitness condition were expected to establish the highest levels of recognition followed by high then low explicitness.

H3: Recognition of advertisement content will be highest for moderate visually explicit ads followed by high visually explicit then low visually explicit advertisements.

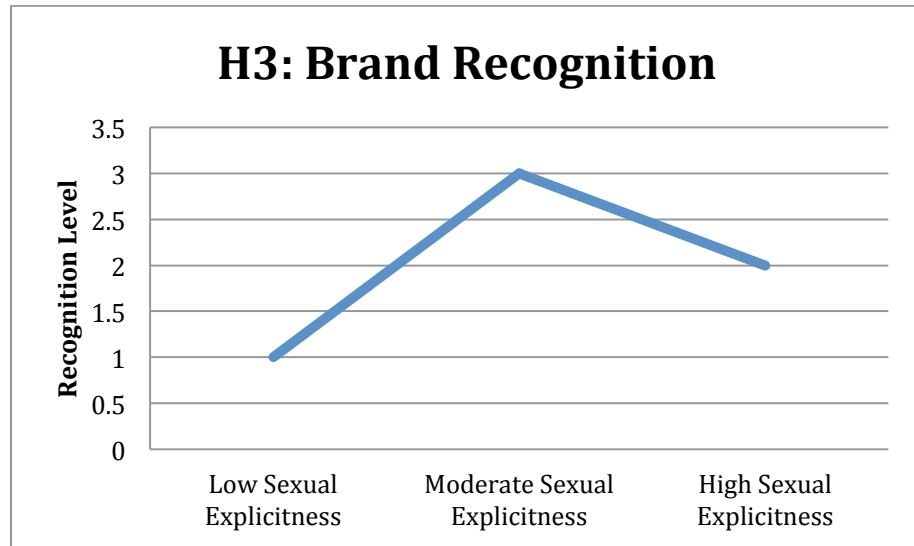


Figure 3. The predicted effect of sexual explicitness on brand recognition.

Chapter 3: Methods

This study employed a 3 (Sexual Explicitness: low/moderate/high) x 3 (Advertisement) x 3 (Order) repeated measures ANOVA. Exposure to ads low, moderate and high in sexual explicitness was manipulated within subjects. Participants viewed three video advertisements in each visual sexual explicitness condition, for a total of nine target ads. Six additional distractor advertisements were also shown to each subject, for a total of 15 advertisements. Distractor ads were included to prevent participants from quickly realizing the nature of the study, but were such that they would not detract from the validity of the experiment. The content of these ads was non-sexual, without a focus on human characters. Participants were randomly assigned to view the advertisements in one of three random orders.

Independent Variables

The independent variables of this study established a baseline to more holistically categorize advertisements to better explore the research question through each hypothesis.

Sexual explicitness. Visual sexual explicitness was conceptualized as the visual depiction of stimuli that can be categorized in the five-dimension coding scheme created for this study: time, clothing, sexual acts, body focus and visual depiction of undressing. Each scene of every advertisement was coded with the five dimensions in mind. A scene was defined as a change in the environment, model appearance, model action or time lapse. If a model was wearing a shirt for the first

four seconds of an ad and then took the shirt off, the scene would be coded as four seconds, regardless of the events taking place in the background. Scenes could also change because of a location change, clothing change or jump in time. This coding decision was made to account for the varying causes for shifts in action taking place in each advertisement, such as a shift from foreplay to sex or from outside to inside.

Within each scene change, coders were expected to consider each of the five dimensions. Time was used to consider the duration of each scene. The length had no effect on the total score. Clothing was defined as the sexual visual depiction of the models' clothing, broken down into suggestive (at least one sexualized part of the body partially exposed), partially clad (underwear plus another article), scantily clad (pure underwear) and nude (fully naked). Scores went from one to four with suggestive clothing earning one tally and nude earning four. Sexual acts were processed as the visual depiction of sexual acts in a manner that direction implies intercourse or foreplay. It included sexual slapping and caressing, kissing, passionate kissing, thrusting and intercourse. Mild acts scored one tally and went up to five tallies for intercourse. Body focus was defined as the visual focus on the body—general and sexual. In order to be considered for this dimension, a model had to take up at least 50 percent of the screen for at least one second. A general close up of the body earned one tally while focus on a sexualized part of the body earned two tallies. Visual depiction of undressing was represented when a model removed an article of clothing. This dimension was only considered when a model took off an item of clothing. For each article removed, one tally was scored.

Once each of the scenes was considered within each advertisement, each scene's score was added up to determine the total advertisement score. The totals for each advertisement were then compared against each other and ranked from least to most sexually explicit. A third of the ads that participants viewed contained low sexually explicit images, a third had moderate sexual explicitness and a third were highly explicit.

Advertisement. Advertisement is conceptualized as the number of advertisements at each sexual explicitness level. Each participant viewed three ads at low visually explicit, three ads at moderate visually explicit and three ads at high visually explicit. Participants also watched six additional distractor ads. Subjects viewed nine experiment ads and six distractor ads for a total of 15 ads.

The final ads presented in the study were broken down into two categories: target and distractor. Target ads included eHarmony, Gap and Trojan for the low condition, Axe, Levi's and Tide for moderate explicitness, and Bluefly, Dolce & Gabbana and Lifestyles for high sexual explicitness. The distractor ads included Bud Light Lime, Coors Light, Galaxy, iPhone 6, Ghirardelli's and Hershey's.

Dependent Variables

The aim of this study was to determine how young adults cognitively and emotionally process sexual advertisements. This was achieved by analyzing the following variables:

Arousal. Arousal was conceptualized as the emotional feeling of excitement and measured through skin conductance, a psychophysiological measure that indexes activity of the sweat glands associated with emotional sweating. It was

evaluated by placing two electrodes on the participants' left hand to record the physical reaction of subjects to the advertisements. Once participants entered the lab, they were asked to wash their hands with soapy water before sensors were connected to the surface of their skin.

Attention. Attention was conceptualized as the cognitive processes allocated to encode a message to long-term memory. It was measured by placing three electrodes on the participants' forearms in an Einthoven's triangle formation to record heart rate as subjects viewed the advertisements. The skin was cleaned with rubbing alcohol on areas the sensors would be placed. Heart rate was recorded and measured as the milliseconds between R-spikes in the waveform. In post-data collection, the electrical signal was converted into beats per minute averaged for each second the advertisement was shown. As heart rate decelerates, individuals become more receptive, therefore attentive to the information they are consuming. Therefore, studying heart rate, we will see how much mental effort participants exert to attend to and process the advertisements.

Recognition of ad content. Recognition of ad content was conceptualized by how well participants encoded information from the video ads. Participants completed a speed recognition test to evaluate their memory retrieval of ad content. A brand logo representing each ad's product was displayed on the screen for 350 milliseconds. After, participants had 3000 milliseconds to determine whether or not the logo represented a brand that was advertised during experimentation.

Procedure

Participants (N = 50) were heterosexual undergraduate students at a large Midwest university. The sample included 21 males and 29 females between 18 and 24 years old. Each participant completed the experiment in a research lab, one at a time. Informed consent was obtained from all participants upon entering the lab. Before participating, each subject was required to complete a screener on sexual preferences to determine if they qualified. Researchers prepped participants for the collection of physiological data by cleaning the affected areas of skin and placing sensors on the skin's surface. Participants viewed the ads on a 32-inch color LCD monitor while seated in a comfortable chair that was locked in the reclining position. The only exception was subjects whose height prevented them from sitting in a reclined position comfortably. Participants viewed all of the ads and answered self-report questions after viewing each ad. Once the subject viewed all 15 ads, the sensors were removed and they watched a distractor video before completing a speed-recognition test of brand logos. Participants were then debriefed, thanked and dismissed. The entire study took approximately 40 minutes to complete.

Data Analysis

Heart rate and skin conductance were analyzed as change from baseline and submitted to a 3 (sexual visual explicitness) x 3 (advertisement) x 27 (time) repeated measures ANOVA. Change from baseline was computed for each second of viewing an ad by subtracting each second of heart rate and skin conductance activity collected during exposure to that message from the value of beats per

minute in the first second of ad exposure and collected for the duration of the ad.

Ads that were more than 27 seconds long were converted 27 seconds.

Brand recognition was be submitted to a 3 x 3 repeated measures ANOVA.

Recognition of ad content was calculated as percentage of hits (correct recognition).

Chapter 4: Results

The aim of this study, as explored through the research question, was to determine how variations in the explicitness of sexual visual imagery in video ads impacts the way young adults cognitively and emotionally process advertising. In order to measure the effects, this study used the cognitive process of arousal and attention, as well as a speed recognition task to test memory retrieval.

Arousal

Arousal was measured by skin conductance for the duration of each advertisement. Error in data recording resulted in removing four participants' psychophysiological data, so skin conductance results are based on 46 participants. Hypothesis 1 predicted that low sexual explicitness would produce the lowest arousal, followed by moderate sexual arousal. High sexual arousal, it was expected, would generate the greatest arousal.

Arousal data was collected through the duration of each advertisement, ranging from 27 to 51 seconds. Data for advertisements longer than 27 seconds was later averaged to create nine ads, each with 27 seconds of data.

To analyze the data for arousal, a 3 (Sexual explicitness: low/moderate/high) x 3 (Advertisement) x 27 (Time) repeated measures ANOVA was calculated to compare arousal levels measured through skin conductance for participants between the low, moderate and high sexually explicit content conditions. Because psychophysiology violates the fundamental assumption of the repeated measures ANOVA that measurements are not correlated, interpretation of results used the

adjusted degrees of freedom used by Huynh-Feidt. Significance was found in the main effect of Sexual Explicitness condition $F(1.6,71.4) = 7.156, p = .003$ (Figure 4), as well as in the interaction of Sexual Explicitness x Time $F(13.9,625.0) = 2.354, p = .004$ (Figure 5).

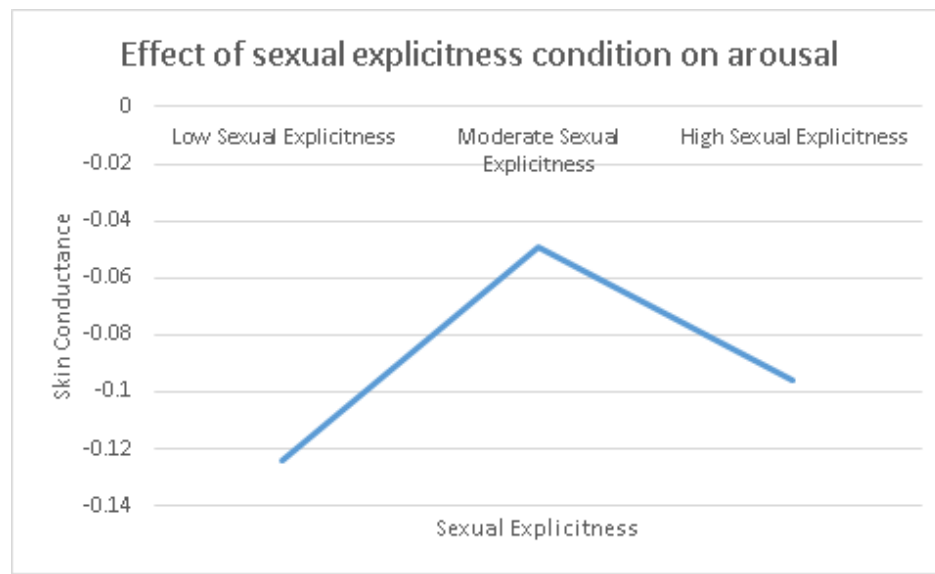


Figure 4. The effect of sexual explicitness on skin conductance levels ($p = .003$).

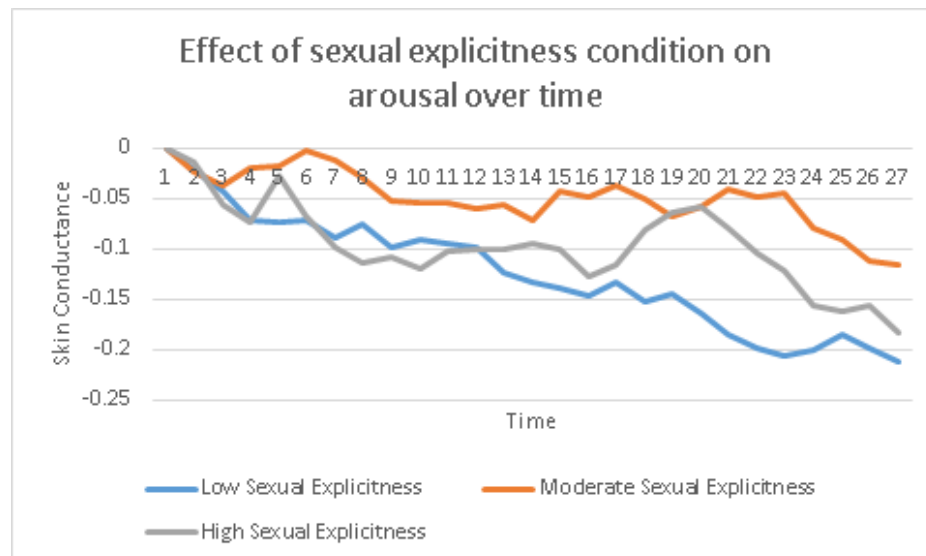


Figure 5. Decay of skin conductance levels with duration of sexual explicitness over time ($p = .004$).

Participants viewing ads with moderate sexual explicitness experienced the highest levels of arousal. High sexual explicitness earned the second most arousal ratings, followed by low sexual explicitness. While it was predicted that low sexual explicitness would produce the lowest arousal levels, high sexual explicitness was expected to receive the greatest levels of arousal, therefore not supporting Hypothesis 1.

Attention

Attention was measured by recording participants' heart rate in beats per minute (BPM). Four participants' data was removed as a result of data collection error, so heart rate results are based on 46 participants. Hypothesis 2 predicted moderate sexually explicit ads would produce the greatest cardiac deceleration followed by high explicitness, with low sexual explicitness showing the least cardiac deceleration.

In analyzing the data for attention, a 3 (Sexual Explicitness) x 3 (Advertisement) x 27 (Time) repeated measures ANOVA was calculated to compare the change in BPM from the baseline in the first second of each advertisement in the three sexual explicitness condition. As with arousal, the interpretation of results used the adjusted degrees of freedom used by Huynh-Feidt because psychophysiology violates the fundamental assumption of the repeated measures ANOVA that measurements are not correlated. The main effect of Sexual Explicitness was not significant, however it was nearing significance $F(2,90) = 2.1, p = .13$. The interaction of Sexual Explicitness x Time, however, was significant $F(27.6,1240.7) = 2.181, p \leq .00$ (Figure 6).

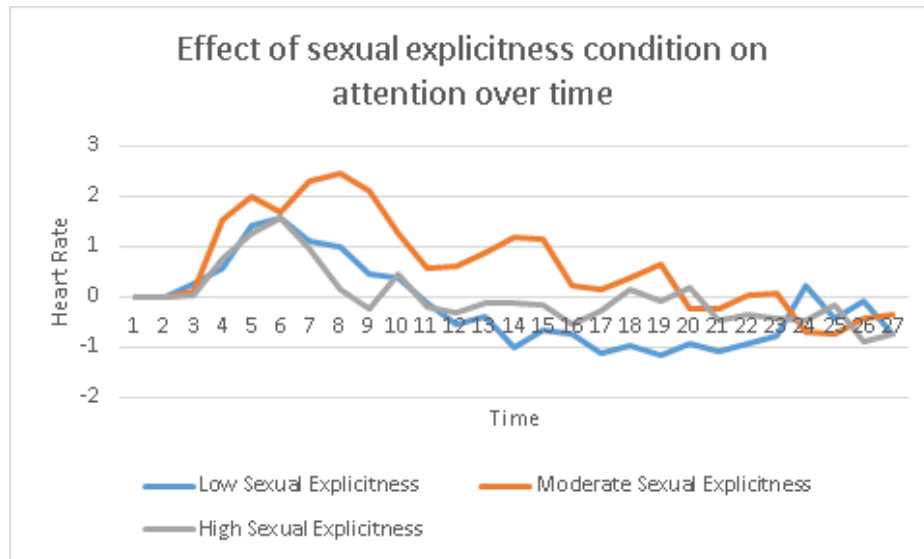


Figure 6. Effect of sexual explicitness on heart rate over time.

The data shows that there was no significant difference in heart rate levels between the three conditions in the main effect for Sexual Explicitness. As such, Hypothesis 2 was not supported. There are, however, interesting results for sexual explicitness over time. Figure 6 shows a significant difference in the slope of each line for low, moderate and high explicitness. Over time, there was a difference in the cognitive resources allocated to encoding for each sexual explicitness condition.

Brand Recognition

Brand recognition was measured by administering a speed recognition test after the subject viewed all 15 ads. All 50 participants' data was included in the results. Hypothesis 3 predicted that recognition of ad content would be highest for moderate sexual explicitness followed by high sexual explicitness, with lowest recognition being for low sexual explicitness.

A researcher removed all of the sensors and the participant watched a short 90-second distractor video. Afterward, participants were asked to complete a speed

recognition test where a logo was presented on the screen for 350 milliseconds. Subjects then had 3000 milliseconds to determine whether or not the logo represented a brand that was advertised during the experiment by selecting the button marked “Yes” or “No”. Each participant saw 18 logos –nine representing brands they viewed in the experiment for each sexual explicitness condition, and nine additional brands that matched the product category of each brand in the experiment.

A 3 (Sexual Explicitness) x 3 (Advertisement) repeated measures ANOVA was calculated to compare the brand recognition results measured through a speed recognition test. Sphericity Assumed was used to determine significance, which was shown in the main effect of Sexual Explicitness $F(2,62) = 14.706, p \leq .000$ (Figure 7).

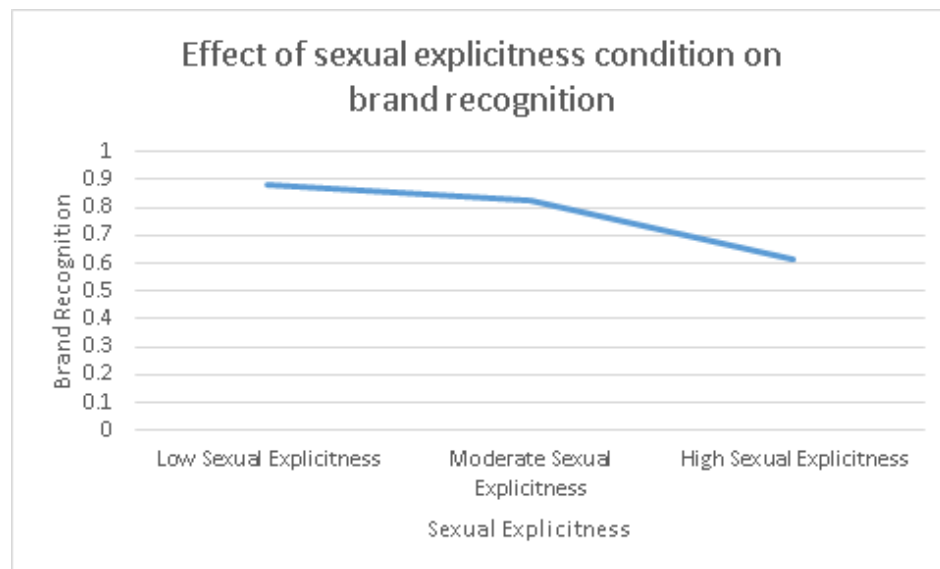


Figure 7. Effect of sexual explicitness on brand recognition ($p \leq .000$).

As seen in Figure 7, participants had greatest brand recognition for low sexual explicitness and the least recognition for high sexual explicitness. The study hypothesized that moderate sexual explicitness would receive the most recognition

in the test followed by high, with low sexual explicitness recognized least. Because of the variation from expected results, Hypothesis 3 was not supported.

Post Hoc Analysis

Additional self-reported data was collected from each of the 50 participants during experimentation. After viewing each of the 15 advertisements, participants were asked four questions on their feelings toward the ad. On four nine-point scales, subjects were asked to indicate how arousing, likeable, pleasant and unpleasant each ad was.

To analyze the data, a 3 (Sexual Explicitness) x 3 (Advertisement) repeated measures ANOVA was calculated for each of the four variables to compare the self-reported measures between each of the three sexual explicitness conditions. This measure used Sphericity Assumed. A main effect for arousal was found to be significant $F(2,98) = 75.7, p \leq .000$ (Figure 8), as was likeability $F(2,98) = 5.5, p = .006$ (Figure 9) and unpleasantness $F(2,98) = 8.2, p \leq .00$ (Figure 10). Pleasantness, however, did not obtain significance $F(2,98) = 1.8, p = .167$.

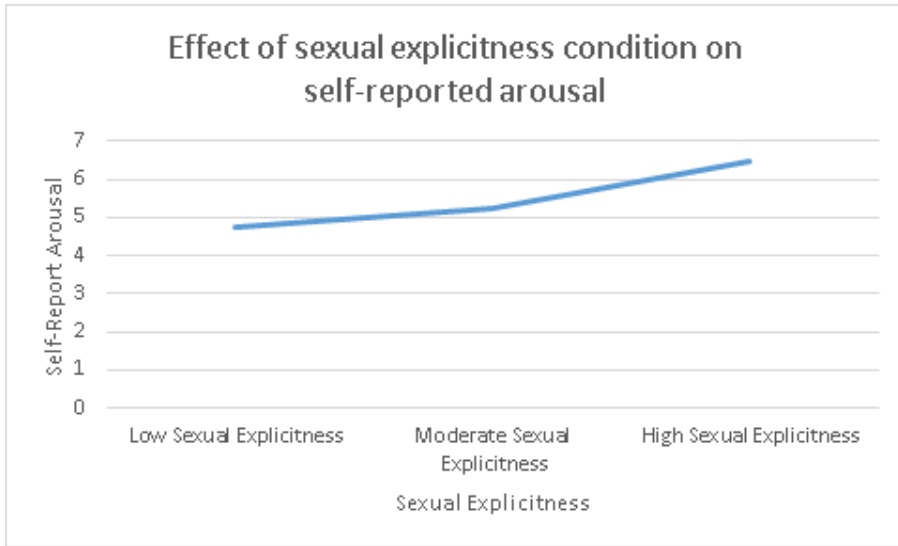


Figure 8. Effect of sexual explicitness on self-reported arousal ($p = .008$).

Results for self-reported arousal levels match Hypothesis 1 for physiological responses. Participants indicated that they were most aroused by ads featuring high sexual explicitness then moderate sexual explicitness. They reported the lowest arousal levels for low sexual explicitness.

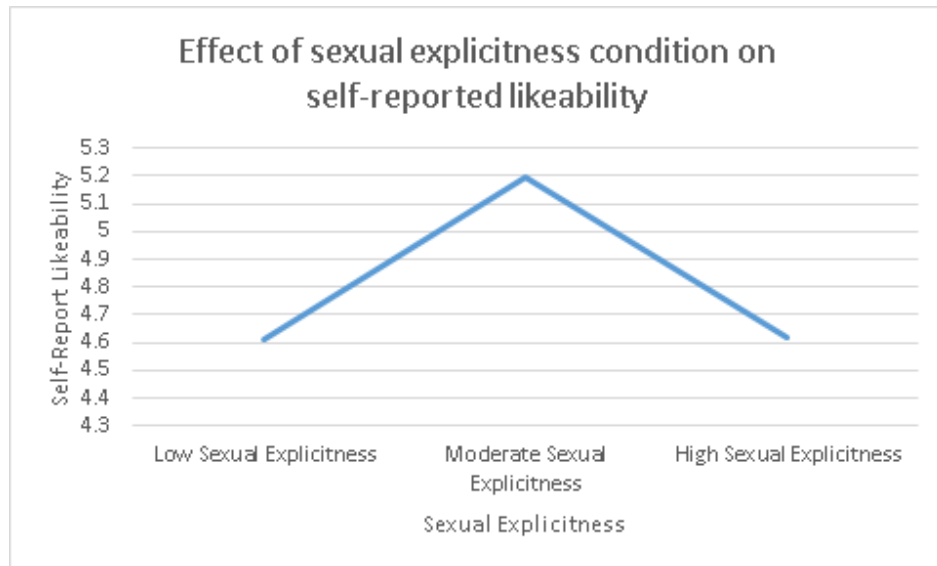


Figure 9. Effect of sexual explicitness on self-reported likeability ($p \leq .000$).

Participants indicated that they found ads with moderate sexual explicitness to be the most likeable, with low and high sexual explicitness being nearly identical in graphing results. High sexual explicitness was rated a few points higher in mean results than low sexual explicitness.

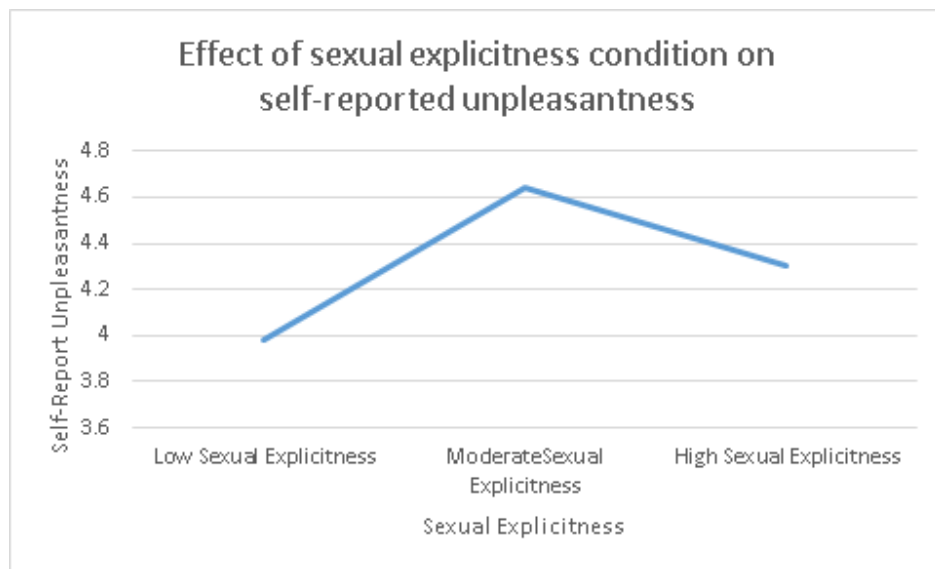


Figure 10. Effect of sexual explicitness on self-reported unpleasantness ($p = .167$).

Self-reported pleasantness did not receive significance because the reported results were not significantly different between conditions. However, self-reported unpleasantness was significant. Moderate sexual explicitness received the highest report of unpleasantness followed by high then low sexual explicitness.

Chapter 5: Discussion

The goal of this study was to explore the cognitive and emotional effects of sexual visual imagery on young adults. With the unique sex and media environment of the 18 to 24 year old market, it is important to discover whether or not sexually explicit advertising is an effective way to reach this market. Because young adults are inundated with sexual messaging every day, understanding the effects of this type of advertising are key to unlocking this powerful demographic.

The research on sexually explicit imagery in advertising has been limited in its ability to accurately capture cognitive and emotional responses to sexual advertising. This study aimed to add new insights on the topic by using a different methodology to better understand consumer reactions to varying levels of sexual explicitness. Using psychophysiological data and self-report methods, the experiment hoped to gain more holistic insights into the 18 to 24 year old market. Sex can be stigmatizing in American culture, therefore causing potential embarrassment for participants who want to stay within the cultural norms of society. Therefore, psychophysiology is meaningful to this research because it has the potential to measure participants' cognitive responses to advertisements in real time. However, self-report measures were also used because they can "describe conscious psychological states reflective of phenomenological experiences and potential behavioral action that might emerge from media use" (Potter & Bolls, 2012, p. 165).

Intriguing results highlight some interesting points to note in this study. Arousal, for instance, was found to be significant in sexual explicitness. Physiologically, participants were most aroused for moderately explicit ads and least aroused for low explicitness, with high explicitness resting in the middle. Explicitness over time for arousal showed a significant difference in the slope of each line for low, moderate and high with the same pattern. Interestingly, over time, all of the slopes went down. Skin conductance, on average, decreased from baseline.

Interestingly, the self-reported results for arousal levels supported those expected in the hypothesis. Participants recorded the most arousal during highly sexual ads and least arousal for low explicitness. It shows that, although physically their body reacts with higher levels of skin conductance to moderate sexualized images, consciously, participants found high sexualized content more arousing.

There are a few possible explanations for these results. Psychologically, there could be a saturation effect for arousal over time. It could be that, regardless of how sexually explicit the content, participants found it less arousing as time passed. It could also be that the moderate ads left a little bit more to the imagination, therefore allowed participants to, figuratively, build their own fantasy. An alternative explanation for the self-report arousal responses could be that, with more scene changes and upbeat music, participants found the ads to be more exciting than the low or moderate conditions.

Heart rate also proved to be significant in terms of sexual explicitness over time. Results show that the cognitive resources allocated to encoding for the slope of each explicitness level is significantly different than the other two. Over time,

moderate sexual explicitness saw a more gradual slope downward than those of high and low explicitness. This shows that, over time, participants allocated more resources to encoding for this condition than in the others. Essentially, 18 to 24 year olds were paying more attention to moderate sexually explicit ads than the other ads. The relationship between these three conditions can be seen in Figure 6.

There is a potential confound in these results because of the humor embedded in the moderate condition. The Axe and Tide ads both used varying degrees of humor to create an arc throughout each ad. It could be that participants were intrigued by these images and paid particular attention to these ads in order to see what happened in the end.

Brand recognition results showed participants were able to identify brands from low sexual explicitness ads the most, high explicitness least and moderate between the two.

Brand familiarity could play a role in these results, causing a confound. The brands used for the low condition were eHarmony, Gap and Trojan, while the high condition featured Bluefly, Dolce & Gabbana, and Lifestyles. Although familiarity could play a role, the branding was about the same in all the ads, with the exception of eHarmony. This could have inflated the results for low sexual explicitness.

The significance of the final two self-report data was peculiar. Likeability was highest for moderate sexual explicitness with low and high explicitness very similarly scored. Interestingly, unpleasantness also showed this same pattern. It is unknown how they received such similar results. The only explanation might be that

participants found it easier to score the moderate ads higher than the other two conditions.

Results found in this study are of importance for the advertising industry. They show that physically, participants have higher arousal levels for moderately explicit ads, but consciously find highly explicit ads more arousing. Overall, though, it is incredibly important to note that arousal levels fell across the board over time. There were similar results for attention over time, though moderately explicit ads retained the highest cognitive resources allocated to encoding. Arousal and attention as physiological measures suggest that, no matter how sexual or intriguing, branding should be done early and often in order to get the product to stick. The results in this experiment provide exciting footing to expand and improve future research.

Limitations

This research was based on a solid theoretical foundation; however, there were some limitations in hindsight that can be used to improve experimentation in the future. No control group was included in the research. There were distractor ads to prevent participants from quickly understanding the purpose of the study, however a control group could eliminate potential confounding variables. It could also provide a “true” baseline to compare sexually explicit ads against.

Additionally, while this study included both males and females as test subjects, results did not include data for the two genders separately. Previous research has highlighted the differences in responses between males and females (Leka et al., 2013). Including gendered results could provide even further insights

into this 18 to 24 year old market. Increasing the number of participants in the data could also improve validity of the study.

Finally, determining low, moderate and high sexual explicitness is subjective. Although, in this study, researchers established a coding scheme to alleviate some of the subjectivity, some degree will always be present. People view sexuality differently depending on sexual experience, exposure to sexualized content and religious upbringing, to name a few. Results may vary in some way because of individual participants' take on sexual explicitness.

Future Research

The results of this experiment show that this is an important topic to explore in the advertising industry. This research makes progress in introducing psychophysiology as an effective method in the research repertoire.

This study further opens the door for research on sexually explicit content combining psychophysiology and self-report measures as methods. The use of psychophysiological measures allow data to be collected in a non-invasive way, allowing biological measures to be collected and interpreted more accurately than traditional research methods. Self-report measures, however, provide conscious responses from participants about their opinions toward advertisements and their memory for each brand. Both are important in determining the holistic effects of sexual explicitness on consumers' arousal, attention and brand recognition.

Future research could study the effects of sexual explicitness on males versus females. As previously stated, there have been interesting results that differ between men and women. This study could use these methods, coupled with the

three levels of sexual explicitness in order to explore the relationships between the variables of gender and sexual explicitness using psychophysiology.

Follow-up research could be conducted to compare the effectiveness of image versus video advertisements in generating cognitive and emotional responses. Researchers could create an experiment where participants are placed into one of two conditions—image or video advertisements. All media would maintain the same sexual explicitness levels—low, moderate and high—while exploring whether or not video advertisements are more explicit than stills. Still images would be pulled from the video advertisements featured in the video condition. The experiment could also explore which of the two conditions generate the higher levels of cognitive and emotional responses, as well as brand recall.

Studies might also put demographic or geographic variables under the microscope to test their effects on cognitive and emotional responses to sexual explicitness.

This study demonstrates rich possibilities for research in this vein of advertising experimentation. By furthering research in this area, the advertising industry can develop greater knowledge on the impact sexual explicitness has on the young adult market, but also society on a global scale.

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Appendix A

Coding Instructions

The basic procedure for coding this variable is:

1. Watch the entire message. After viewing the message once:
 - a. Fill in the name and length of the message
2. Watch a second time, this time looking for scene changes. When there is not a clear change (such as a dissolve), watch the last clear frame before and the first clear frame after the scene change.
3. For each scene change, consider each of the 5 dimensions below. If the dimension is present, mark the appropriate number of tallies in the box. If not, do nothing.
4. You will sum the tallies and that will be the total for that scene change.
5. At the end, sum all the scene changes for a given message to create the total message score.

Scene Change

Scene Change is defined as a change in environment, model appearance, model action or time lapse. For example, if a model is wearing a shirt in for 10 seconds and then takes the shirt off, regardless of a change in the background, the scene would have lasted for 10 seconds. The scene could also change as a result of the environment changing (such as location), a model suddenly, and without taking clothes off, wearing different clothes, or a time lapse (jump in time).

Definitions of Dimensions

1. Time

Time is defined as the number of seconds each scene change is represented. For example, if one shot shows a scene in the jungle for 5 seconds then switches to a scene in a hut, the change would be 5 seconds.

2. Clothing

Clothing is defined within each scene change as the sexual visual depiction of the models' clothing. There are four categories: suggestive, partially clad, scantily clad and nude.

Suggestive earns one tally and is defined as fully clothed with at least one sexual part of the body partially exposed. That could include a crop top shirt, low cut blouse or short shorts for a female model or low cut pants for a male model.

Partially clad earns two tallies and is defined as underwear plus. That could include a swimsuit for male or female models or underwear plus at least one additional article of clothing. See through and/or wet clothing is included in this level.

Scantily clad earns three tallies and is defined as pure underwear. This includes models wearing only undergarments or it could be a model wearing only underwear with no bra. Wearing only a towel is included here.

Nude earns four tallies and is defined as fully naked. In order to earn this score, a model has to have no clothes on or there is the allusion that the model is not wearing clothes.

When two models are present, include the total score for both male and female models.

3. Sexual Acts

Sexual acts are defined within each scene change as the visual depiction of sexual acts in a manner that directly implies intercourse or foreplay. That includes sexual slapping and caressing, kissing, passionate kissing, manual stimulation, oral sex or intercourse.

Sexual slapping, caressing of the skin and brief kissing (peck on the mouth or other parts of the body) or hugging earns one tally.

Passionate kissing, such as prolonged kissing on the lips or other parts of the body, passionate embraces, and touching or caressing sexual parts of the body over clothes, earns two tallies.

Touching or caressing sexual parts of the body under clothing, as well as thrusting over the clothes earns three tallies.

Oral stimulation of sexual parts of the body earns four tallies.

Intercourse earns five tallies.

4. Body Focus

Body focus is defined within each scene change as the visual focus on the body. That includes the camera focused in on the body as well as sexualized parts of the body.

General close up of the body (50 percent or more of the frame) earns one tally. Focus on sexualized parts of the body earns two tallies.

5. Undressing

Undressing is defined within each scene change as the visual depiction of undressing. If there is visual depiction of undressing, mark one tally. If there is none, do nothing.

Appendix B
Advertisements

1. Low Sexual Explicitness
 - a. [eHarmony](#)
 - b. Gap
 - c. Trojan Lubricants
2. Moderate Sexual Explicitness
 - a. [Axe Underwear](#)
 - b. [Levi's](#)
 - c. [Tide](#)
3. High Sexual Explicitness
 - a. [Bluefly](#)
 - b. [Dolce & Gabbana](#)
 - c. [Lifestyles](#)

Appendix C

Self-Report Questions

1. How calm or exciting did you find the ad you just viewed?
Very calm –very exciting
2. How pleasant did you find the ad you just viewed?
Not pleasant at all—very pleasant
3. How unpleasant did you find the ad you just viewed?
Not at all unpleasant—very unpleasant
4. How much did you like the ad you just viewed?
Not at all—Very much

Appendix D

Brand Recognition Questions

You will now see a series of brand logos. Each brand will appear briefly before disappearing. After viewing the logo, you will be asked to indicate whether you saw the brand in the previous advertisements. Click continue when you are ready.

Did you see this logo?

Yes

No