CHAPTER III
RESEARCH METHODOLOGY

3.1 Research Framework

To investigate consumer responses toward different advertising designs in the advertising of offensive products, the conceptual framework of this study is formed as follows:

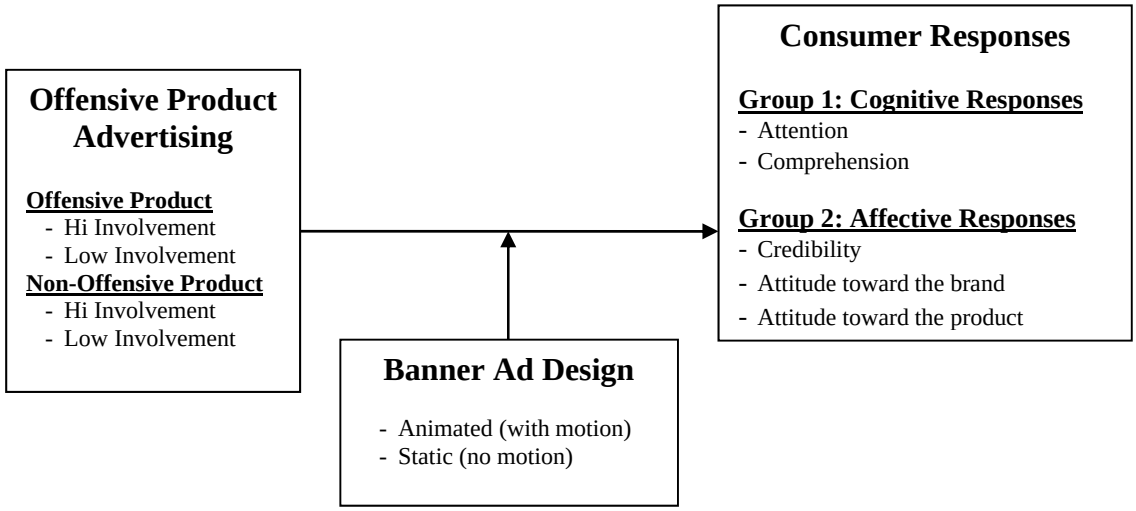

Figure 3-1: Conceptual Framework of the Study

The model suggests that the advertising of offensive products affects cognitive and affective responses. These effects differ by levels of involvement and are moderated by the banner ad designs. Specifically, the model proposes that consumer cognitive and affective responses are expected to be more favorable when animation are used in the offensive product advertising. In addition, the higher level of involvement would decrease the favorable effects of animation in the ads. To justify the framework, the descriptions of supporting theories are discussed in the following sections.

3.1.1 Overall Relationships

The model of communication process discussed in Chapter 2 can be applied to elaborate the relationships in the framework as it provides an overall understanding of how communication occurs when the consumer is exposed to an advertisement. According to the

model, consumer or receiver responses are dependent on the source, the encoding process, the channel of communication, the noise, the decoding process, and the receiver. All of these components are important to the effectiveness of communication as they promote understanding between the sender and the receiver (Foulger, 2004)

Since 1) the success of the communication relies on the message's nature and the environment in which the message is being received (Belch & Belch, 2009), and 2) encoding forms can influence the receiver's interpretation (Burnett & Dollar, 1989) and it is important for the sender to use symbols that are suitable to the intended receiver (Sanchez, 2011), this study investigated consumer responses toward banner ads presented on the web. These responses were influenced by 1) The effects of the product types (offensive and non-offensive) as part of the message content and 2) the effects of the encoding forms, which in this case is animation. By controlling the other factors, the source, the communication channel, the noise, and the receivers were considered similar in the experiment.

3.1.2 Hypotheses

Because arousal and distinctiveness are the main attributes of animation, it has been suggested in earlier literature that the animation in ads can positively affect viewers' cognitive and emotional responses. However, it is not clear whether these effects apply to all types of products and target audiences. Are there any differences in the effects of these stimuli on cognitive and emotional responses? Although the evidence from previous studies regarding mood arousal and media choice suggests that media or advertising with pleasant attributes such as animated graphics could alleviate a viewer's aversive feelings and would possibly lead to a better evaluation of the ads, there is also evidence that different degrees of arousal could influence emotional reactions and moods to varying degrees. Is it possible that there is a missing moderator between the stimuli and consumer reaction? As neither product category has been considered as a moderator of these relationships, could the effects of arousal in the ads vary across offensive and non-offensive products?

The IP model also suggests that familiar stimuli such as spoken or printed words, faces, and sounds can enhance the effectiveness of information processing in sensory memory as they involve a high degree of automaticity. Thus, when compared to static ads, movement in animation requires more mental efforts for processing the information. The higher cognitive loads required to process animation, therefore, would lead to the ads being

less effective, particularly for offensive products as audience tends to be less motivated to process the product information.

The preceding discussion suggests two possible effects of animation in the advertising of offensive and non-offensive products. Implied from the IP perspective, animation should be less effective in offensive product advertising. This is because, as audience tends to avoid or are reluctant to process offensive product information, and animation requires greater mental effort to process, it is harder for them to retrieve the information contained therein automatically from their long-term memory. In contrast, in ads of non-offensive products, the attention paid to the ads will be more due to the higher willingness to process the product information in the ads, therefore the resources allocated to process information and the retrieval of the product information to the long-term memory will be more prominent. As degrees of cognitive load and selective attention may impact the effectiveness of the learning process (Sweller & Chandler, 1994), the use of animation in offensive product advertisements could be burdensome in terms of information processing and, therefore, may lower the effectiveness of the ads. As attention to animated and static ads is expected to be higher for non-offensive products, the other cognitive and affective responses towards animated ads such as comprehension, credibility, attitude towards product, and attitude towards the brand will also be accentuated in non-offensive product advertising. Thus, we hypothesise that:

H1: There is an interaction effect between the ad design and product category on consumer cognitive responses, so, in comparison to static ads, animated produce: (a) more favourable attention for non-offensive products than for offensive products and (b) more favourable comprehension for non-offensive products than foroffensive products.

H2: There is an interaction effect between the ad design and product category on consumer affective responses, so, in comparison to static ads, animated ads produce: (a) higher credibility for non-offensive products than for offensive products, (b) more favourable attitude towards the brand for non-offensive products than for offensive products, and (c) more favourable attitude towards the product for offensive products than for non-offensive products

In contrast, the U&G, arousal and distinctive theories implies that pleasant external cues such as animation in the advertising design should be able to alleviate positive emotion and therefore should be more effective in offensive product advertising as these products generally generate negative moods. Therefore, based on U&G, arousal and

distinctive theories, animation in offensive product advertisements should yield more favourable responses towards consumer affective responses. Thus, we hypothesise that:

H3: There is an interaction effect between the ad design and product category on consumer cognitive responses, so, in comparison to static ads, animated ads produce: (a) more favourable attention for offensive products than for non-offensive products, and (b) more favourable comprehension for offensive products than for non-offensive products

H4: There is an interaction effect between the ad design and product category on consumer affective responses, so, in comparison to static ads, animated ads produce: (a) higher credibility for offensive products than for non-offensive products, (b) more favourable attitude towards the brand for offensive products than for non-offensive products, and (c) more favourable attitude towards the product for offensive products than for non-offensive products

3.2 Pilot Study

A pilot study was conducted prior to the actual experiment in order to obtain supporting information to verify the appropriate product categories to be used in the research study. From the framework, there are 4 groups of products in this experiment: 1) high-involvement offensive product, 2) low- involvement offensive product, 3) high-involvement non-offensive product, and 4) low- involvement non-offensive product. The pilot study, therefore, was designed to investigate respondents' offensive feelings and involvement levels toward a list of potential products to be used in the experiment.

3.2.1 Methodology

The study was conducted by distributing questionnaires to the target respondents. According to statistics from Innovative Internet Research Center, Thailand, (IIRC) (2011), majority of internet users are 18 – 44 years old, most of whom are young, well educated, and affluent. Therefore, the respondents of this pilot study were selected from this pool of population profile. The questionnaires were designed to collect the information regarding the respondent's offensive feeling toward the online advertising of offensive products, as well as purchase involvement levels.

In the first part, the list of twelve products, which could be used for the mock advertising design, was provided. Respondents were instructed to rate their offensive feelings

toward online advertising of these products on the Likert-scale of 1 = “Not at all” to 5 = “Extremely Offensive”. The scale used passed reliability test at Cronbach’s alpha = 0.749.

The second part measured respondents’ purchase involvement to each of the twelve products. The 7-item semantic scale used in this questionnaire was modified from Mittal’s (1995) purchase decision involvement (PDI) scale, which is one of the most popular purchase involvement scales available. This scale also passed reliability test at Cronbach’s alpha = 0.866.

The last part of questionnaire was designed to collect demographic data, including age, gender, income, education level, working status and marital status. The demographic data can be used to find the influence of demographic characteristics and the offensive feeling and purchase involvement. The example of this questionnaire design is attached to this report.

3.2.2 Results

One hundred and thirty-one respondents had returned the questionnaires. For the demographic data, the results show that, among the respondents, 59.4% are female and 40.6% are male. Regarding employment status and income, 47.4% are working full-time, 9.0% are working part-time, and 42.1% are not working, whereas 34.6% have monthly income lower than 10,000 baht, 20.9% receive between 10,001 – 25,000 baht per month, 17.3% receive between 25,001 – 40,000 baht per month, and the rest of the respondents receive higher than 40,000 baht per month.

For the consumer offensive feeling of customers, the five products that received highest offensive feeling toward the advertising were condom/contraceptive products, dental floss, plastic surgery, and anti-acne products. The detailed ranking of the means of offensive feeling toward the ads for each product are shown in the Table 3-1. The results categorized the products into three groups: high, neutral, and low involvement products as shown in Table 3-2 below.

Table 3-1: Ranking of the Means of Offensive Feeling toward the Advertising

Products/Services	N	Mean	Std. Deviation
Condoms & Contraceptives	131	1.85*	1.03
Dental Floss	131	1.66*	0.77
Plastic Surgery	131	1.62*	0.94
Anti-Acne	131	1.51*	0.79
Mouthwash	131	1.46*	0.69
Toilet Paper	131	1.34*	0.70
Toothbrush	131	1.30*	0.59
Perfume/Cologne	131	1.15*	0.49
Facial Tissue	131	1.09	0.34
Shower Cream	129	1.09	0.33
Mobile Phone	131	1.08	0.33
Notebook Computer	131	1.04	0.19

*Note: *Means are significantly higher than1 (=not offensive at all)*

Table 3-2: Involvement Levels (From Highest--7 to Lowerst--1)

Products / Services	N	Mean	Std. Deviation	Involvement Level
Mobile Phone	131	5.95	1.12	Hi
Notebook Computer	131	5.83	1.13	
Anti-Acne Product	131	5.52	1.43	
Plastic Surgery	131	5.43	1.74	
Perfume/Cologne	131	4.95	1.29	Neutral*
Condom & Contraceptives	131	4.94	1.73	
Shower Cream	131	4.68	1.19	
Toothbrush	131	4.67	1.33	
Mouthwash	131	4.39	1.27	Low
Facial Tissue	131	4.17	1.35	
Dental Floss	131	3.99	1.46	
Toilet Paper	131	3.84	1.27	

** Means are not significantly different from 4.86 (Average Score)*

In addition to the descriptive data, the important findings of this pilot study are:

1) Gender was found to have significant influence on the offensive feeling toward the advertisement of condoms and contraceptives, as shown in Table 3-3 below:

Table 3-3: Influence of Gender on Offensive Feeling toward Condoms and Contraceptives

	Gender	N	Mean	Std. Deviation
Condoms and Contraceptives	Male	51	1.51	0.86
	Female	80	2.06	1.08

2) Age was found to have significant influence on the offensive feeling toward the advertisement of dental floss, as shown in Table 3-4 below:

Table 3-4: Influence of Age on Offensive Feeling toward Dental Floss

Age	Mean	N	Std. Deviation
20-25	1.88	60	0.80
26-30	1.50	46	0.69
31-35	1.45	22	0.74
Total	1.67	128	0.78

3) Education Levels and Income do not have significant influences on offensive feelings toward products.

3.2.3 Discussions and Application to the Current Study

The results of the pilot study above provided the list of possible offensive products/services that can be used in the experimental design. The selection of the products is based on involvement theory, as the products and services used in the experiment should be assigned into both high- and low-involvement levels. Therefore, in the experiment, four of these products/services were used: 1) high-involvement offensive product, 2) low-involvement offensive product, 3) high-involvement non-offensive product, and low-involvement non-offensive product. To categorize the products based on these criteria, the

summary of offensive and non-offensive products with different involvement levels are shown in the table below.

Table 3-5: Four Categories of Products to Be Used in the Experiment

	High Involvement	**Low Involvement**
Offensive Products	Plastic Surgery Anti-Acne Product	Mouthwash Dental Floss* Toilet Paper
Non-Offensive Products	Mobile Phone Notebook Computer	Facial Tissue

** Influenced by age*

3.3 Research Method: Experiment

Experiment is the most effective research method that allows researchers to measure and compare consumer responses toward different advertising designs (Ang & Lim, 2006). The uniqueness and major strength of experimentation is the ability to describe the consequences attributable to intentionally varying a treatment (Shadish, Cook, & Campbell, 2002). By using an experimental method, tests csn be conducted in a highly controlled environment, which allows manipulation of the independent variables and helps minimize the influence of other factors on the subjects (Zikmund & Babin, 2007). As previously discussed, the proposed research therefore has identified the effects of ad designs on consumer responses toward offensive products. Thus, in this study, the ad design, which is the independent variable, can be manipulated by creating different mock-up ad designs using multimedia software.

During the test, these ads were presented to the participants, and then dependent variables, which are different types of the consumer responses toward each design, were collected. Tools, such as a questionnaire, and tests for comprehension and recognition, were used according to the data being collected. In the process of data analysis, statistical results were used to determine the significant effects of different ad designs on consumer responses toward offensive products. The details regarding the experimental design of the study as well as the internal and external validity issues are illustrated in Sections 3.3.1 to 3.3.5.

3.3.1 Internal and External Validity

The validity of an experiment judges the quality of the study (Zikmund & Babin, 2007). There are two well-known types of validity: internal and external validity (Sekaran, 2003; Malhotra, 2007; Zikmund, 2003; Zikmund & Babin, 2007).

The internal validity in experimental design is referred to as "the confidence we place in the cause-and-effect relationship" (Sekaran, 2003)(p.149). In other words, internal validity is the measure of experiment accuracy (Malhotra, 2007) and the researcher's ability to draw inference (Shadish, Cook, & Campbell, 2002; Creswell, 2009) whether the treatments truly cause the observed effects, or there are extraneous variables that can explain the phenomena (Zikmund & Babin, 2007). To validate the inference of cause A on effect B, therefore, researchers must prove that 1) A precedes B, and 2) A is related to B, without any other plausible explanation (Shadish, Cook, & Campbell, 2002).

There are many types of threats to internal validity, such as history, maturity, regression, selection, mortality or attrition, testing, instrumentation, and diffusion of treatment (Sekaran, 2003; Shadish, Cook, & Campbell, 2002; Zikmund, 2003; Creswell, 2009). On the other hand, external validity concerns "inferences about the extent to which a causal relationship holds over variations of persons, settings, treatments, and outcomes" (Shadish, Cook, & Campbell, 2002)(p.83). It refers to the experiment's ability to generalize the results so that they are applicable to external environment or to other subjects in the population (Sekaran, 2003; Zikmund, 2003; Malhotra, 2007; Zikmund & Babin, 2007).

The threats to external validity generally fall into three categories: 1) interaction of selection and treatment, due to the narrow selection of participant characteristics; 2) interaction of setting and treatment, due to the characteristics of the settings not being able to be generalized; and 3) interaction of history and treatment, because of the experiment being time-bound (Creswell, 2009).

Both threats to external and internal validity can generate extraneous variables, or so called confounding variables, which are variables that represent alternative causation of the experimental results (Malhotra, 2007). In order to control the extraneous variables that impair both internal and external validity, a randomization process and statistical control, such as ANCOVA, are some of the methods that can be used (Malhotra, 2007). The randomization process provides an equal chance for each test unit to be assigned to a treatment, which in turn would allow researchers to control the extraneous variables (Zikmund, 2003) and increase internal validity as well as the generalizablity of the study

because the differences of the outcomes are not due to the differences of the sample group being studied (Shadish, Cook, & Campbell, 2002). In this study, both randomization and statistical control were the main methods used to strengthen the internal and external validity of the experiment.

3.3.2 Sample: Participants of the Experiment

3.3.2.1 Participants and External Validity

In experimental studies regarding consumer responses toward advertising, the samples were mostly limited to a small group, such as a group of undergraduate and/or graduate students (e.g., Lin & Chen, 2009; Calisir & Karaali, 2008; Wang, Chou, Su, & Tsai, 2007; Ryu, Lim, Tan, & Han, 2007; Ang, Lee, & Leong, 2006; Yang, 2006; MacKay & Smith, 2006). However, although the students are used as samples, the generalizability of the study can still be acceptable if the students are majority part of the target population (Zikmund, 2003; Zikmund & Babin, 2007).

In this study, in order to increase the external validity, the ability to generalize the results can first be enhanced by selecting participants who match up with the population profile so that the participants are representative of the population (Zikmund, 2003). Second, these participants were later randomly assigned to different treatments during the experiment described in the next subsection. The randomization process ensures that each individual has an equal chance to be exposed to each treatment, thus eliminating any systematic bias that could influence the outcomes (Keppel, 1991). Lastly, the standardized method of sample size determination (see details in Section 3.3.2.2) can also increase the external validity of this study.

3.3.2.2 Sample Design and Sample Size

For this current study, the population is internet users. According to statistics from *Internet* Innovation *Research Center* (IIRC, 2011), majority (76%) of internet users are 18 – 44 years old, most of whom are young, well educated, and affluent. Therefore, the participants of this study were selected from this pool of population profile.

Since most of the potential customers are located in Bangkok and its metropolitan areas (IIRC, 2011) the participants in this experiment were young Thai adults who are aged between 18-44 years old, and who are well-educated, affluent Internet users. Therefore, participants were selected from undergraduate students who were studying in a private university.

To determine the sample size, this study calculated the number of participants by using Lipsey's (1990) method suggested by Creswell (2009). The calculation involved three factors: statistical significance (alpha) = .05, power = 80, and effect size = .50. The calculation results from this setting determined a sample size of 33 per group. Since there are two different ad designs and two groups of products (within-subject, high and low involvement) as manipulated treatments, the total number of participants needed was 132. In the actual experiment, 184 undergraduate business students who were identified as Internet users were randomly assigned to view four different ad sets, with 46 participants in each condition. The average age of the participants was 22.7 years old, while 43.5 percent were male and 56.5 percent were female. College students are frequently used in studies that appear in leading scientific journals and were viewed by Kasser and colleagues (2002, p. 7) as "the backbone of much scientific research in psychology".

3.4 Variables

3.4.1 Independent Variables

Since the purpose of this study is to explore how offensive products can be effectively advertised by different advertising designs, the independent variables in this study are the product types: offensive and non-offensive products. According to the involvement theory and ELM, the effect of levels of involvement on cognitive response can cause different processes of decision making where the different levels of involvement can be caused by different types of products, messages, and/or decisions. Since this study divides product categories into offensive and non-offensive products, these two types of products have then been divided further into high-involvement and low-involvement products so as to enable investigation regarding the extent of the differences of consumer responses toward these products in different levels of involvement.

From the results of the pilot study of offensive products, the product grouping in the experiment are shown in the table below. To identify the potential high- and low-involvement offensive products to be used in the experiment, a pilot study was conducted on a sample group of target consumers.

Table 3-6: Product Grouping for the Experimental Design

	Offensive	**Non-Offensive**
Low-Involvement	*Mouthwash*	*Facial Tissue*
High-Involvement	*Anti-acne*	*Notebook Computer*

3.4.2 Dependent Variables

Concluded from the reviews of the consumer responses toward ads, this study measured cognitive responses and affective responses, including attention, comprehension, credibility, attitude toward the brand, attitude toward product, and offensiveness toward the ads. Since the products and services used in the experiment include both low and high levels of involvement, the consumer responses were measured independently. This idea is supported by many previous research studies regarding consumer responses toward advertising in general and toward online advertising in particular.

For example, the study of Yoo, Kim, and Stout (2004) on the effects of animation in online banner advertising was conducted by following the three stages of the Hierarchy of Effects model, but measuring the three types of responses independently using Barry and Howard's (1990) suggestions on the measurements of cognition, affect, and conation. This study used memory, such as recall and recognition, for the measurement of cognition; attitude toward the ad for the measurement of affect; and click-through rate for the measurement of conation. However, this study does not agree with the measurement of conation by using the click-through rate because this type of measurement has been criticized as being unrealistic in reflecting consumer behavioral responses. One study showed that, even with low click through rates, banner ads can create favorable responses in terms of attitude toward the brand (Fang, et al, 2007).

Instead, this research followed many research studies that have focused on only a few selective measurements. For instance, the study by Lohtia, Donthu, and Yaveroglu (2003) measured the efficiency of Internet advertisements by using consumer recall, attitude toward the ad, and click-through rate. Sewak and colleagues (2005) measured only knowledge and attitude toward the advertisement for different website designs. There are also many studies that investigate how animation could enhance audience attention to the ads (e.g., Neeley & Schumann, 2004; Hong, Thong, & Tam, 2004).

However, Robertson (1976) argued that, under low-commitment conditions, only exposure to the ads can affect consumer behavior. Recall may or may not be relevant to low-commitment products. Thus, since this experiment involves products with both high- and low-involvement levels, recall was eliminated from the measurement of consumer response.

Contrasting with other variables, credibility is found to be lower when cartoons or line art are used in the ads when compared to real photos (Lohse & Rosen, 2001). Thus, it would be interesting to measure credibility as part of cognitive response in order to find out whether there is also a negative effect of animation in the ads.

Therefore, the most rational choices to be used as measurements for consumer cognitive response are “attention”, “comprehension”, and “credibility”.

For other responses, firstly, the measurement of consumer response followed previous studies that stick to Barry and Howard's (1990) suggestions by using attitudes toward brand for the measurement of affect. Secondly, since this study intended to investigate the influence of the advertising design on offensive products, this study added emotional response as a dependent variable in order to measure the impact of different ad designs particularly on consumers’ negative or offensive feelings toward products. This effect was measured by comparing the participant’s offensive feeling prior to the experiment with the offensive feeling toward the same product after being exposed to the ads in the experiment. The items measured represented consumers’ offensive feelings, such as feelings of disgust, and so on.

3.4.3 Moderators

The effects of offensive product types on consumer responses were moderated by advertising designs, which are the moderators of this study. The literature review regarding the effects of animation on consumer responses toward advertising indicates that both animation may have an impact on viewers. Thus, the moderators for this study are the two banner ad design factors: animation (motion and no-motion).

3.5 Experimental Procedures

This experimental design was a 2 x 2 between-subject factorial design experiment, with two conditions for each of the two product types (offensive and non-

offensive) under two involvement levels (low and high involvement) as independent variables, and two ad designs as moderators.

During the experiment, the participants were instructed to follow a sequence of experimental procedures. First, they were asked to spend twenty minutes on the mock website reading the article. After seeing the web pages, the participant had to work on the cognitive and affective measures for the advertisements. To enhance the internal and external validity, subjects were not informed about the topic of the study to ensure that their responses toward the advertisements were not influenced by their awareness of the study's purpose. This procedure tends to reduce demand artefacts, which is a phenomenon that occurs when a participant responds according to the speculated purpose of the study (Malhotra, 2007).

In addition, each participant was brought into a separate room to use the computer alone, without interruption or interference from other people. The environment and atmosphere in all sessions set for the experiment were identical. In each session, the participant was required to read the article and see the embedded advertisements of fictitious brands. Only one design (animated or static) of each product was randomly selected for display to the participant in each of the four web pages. For the total of four products (one for each page), offensive and non-offensive high-involvement products, and offensive and non-offensive low-involvement products were shown. The sequence of banners and products was also randomised. In conclusion, the experiment procedures are sequenced as shown below:

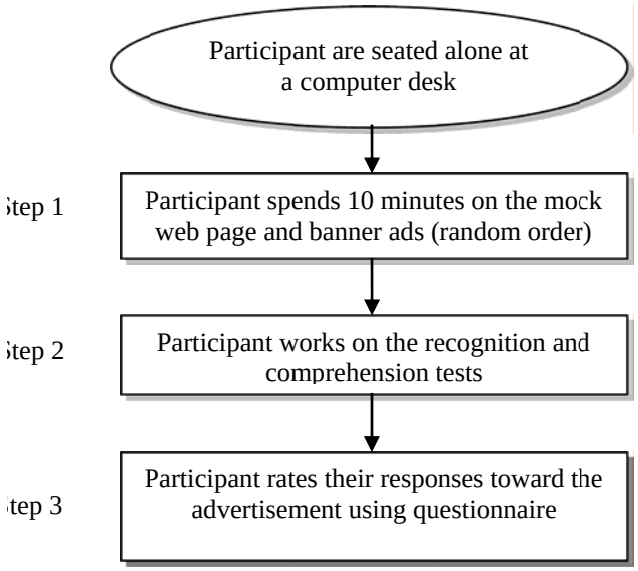

Figure 3-2 Summary of Experimental Procedures

3.6 Research Tools and Measures

The typical type of advertising that can use both animation (movement) are banner advertising, which is the most common method of advertising on the Internet (Cho, 2003). With different types of forms and pricing, they are easy to create and vastly employed as a marketing tool for advertising. Also, the interactive capability can provide advertisers with direct feedback data, such as the Click-Through Rate (CTR), which reports the numbers of times consumers have responded to the ad by clicking on the banner. However, interactive data alone may not be enough to determine the total impact of web advertising on consumer behavior because this type of behavior response does not cover the cognitive and affective consumer responses when exposed to the banner. A study showed that, even with low click through rates, banner ads can create favorable responses in terms of attitude toward the brand (Fang, et al, 2007). To measure the effectiveness of banner ads, therefore, some studies have selected other types of responses such as consumer cognitive response such as attention, and affective response such as attitudes to further analyze banner ads' effectiveness (e.g., Yoo, Kim, & Stout, 2004; Lai, Kuan, Hui, & Liu, 2009). The measures and instruments that were used in the study are summarized in the table below.

Table 3-7: Summary of Measures and Tools

Variable Types	Variables	Measures and Instruments
Independent Variables	**2 Product Types** 1. Offensive 2. Non-offensive	Pilot Test, Manipulation Checks
Dependent Variables	**Cognitive responses** 1. Comprehension	Comprehension Test
	2. Attention **Affective responses** 1. Credibility 2. Attitude toward the brand 3. Attitude toward the product	Questionnaire (Likert Scale)
Moderators	**Ad Designs** 1. No motion (Static) 2. Animated	- Manipulation using Flash - Confirmed by experts - Manipulation Check

3.6.1 The Mock Banner Advertisements and Web Pages

The mock banner ads of a standard size of 468 x 60 pixels were created for the tests using Adobe Flash multimedia software. For each product, there were two different types of graphical design: animated and static. For both high involvement and low involvement products, two products were used in each category. Therefore, altogether there were 2 x 2 = 4 products. Since each product had 2 designs, the total number of banner ads was four products x 2 designs or 2 x 2 x 2, which equates to eight banners. The mock banner ads with a standard size of 468x60 pixels were created for the tests by using the multimedia software called Adobe Flash.

The layout of all banner ads comprised of a picture of the presenter on the left, a picture of the product on the right, and text indicating the brand name in the middle.

To avoid internal validity threats caused by instrumentation effects, all ads used the same text format, including font type, font size, font color, and text message along the lines of: “Try [brand name] [product name]”. To eliminate possible biases, the banners for all products were placed in the same position on the web page. No sound effects were used. Examples of the static banner advertisements are provided below:

Figure 3-3 Sample Static Banner Ad

For the animated banners, the components seen in the static ads were moved around the banners. In order to reduce internal validity threats caused by instrumentation effects, the speed and animation length of the animation were equal among all ads at 12 frames per second, with an animation length of 120 frames (10 seconds).

Before their actual use in the experiments, all banners were evaluated by banner ad designers who were considered as experts to judge whether the ads were designed according to the four different treatments.

For the mock web pages, a four-page article was used; it presented general knowledge about dreams, such as causes, types, and dream interpretation. One ad was placed at the bottom of each article. Therefore, the ads of all 4 products (non-offensive and

offensive, high and low involvement products) were shown to the participants before they finished reading the article.

3.6.2 Comprehension Test

For the comprehension test, the design of the test in this study was guided by the tests for knowledge and information recall that have been used in previous studies regarding banner advertising effects (e.g., Sewak, Bentley, & Smith, 2005; Yang, 2006). Series of multiple choice questions were used to draw answers from the subject regarding the products and brands being advertised. There were two questions for each of the four banners. Therefore, the total number of questions in this test is eight.

3.6.3 Questionnaire Design

The questionnaire was particularly used for measuring cognitive responses and affective responses including attention, credibility, attitude toward the ad, attitude toward the brand, and offensive feeling toward the ad.

3.6.3.1 Measures of Attention

To measure attention, many studies used a single-item Likert-scale questioning about the level of attention paid to the ads (e.g., Yang, 2006; Wu, Wei, & Chen, 2009). However, a study that focus on attention-grabbing conducted by Yoo, Kim, & Stout (2004) measured attention by using two items, modified from Duncan's (1985) measure: a seven-point scale anchored by "paid no attention" and "paid a lot of attention," and a seven-point Likert-type scale ("The ad was eye-catching") anchored by "strongly disagree" and "strongly agree." This study, therefore, adopt these scales by using two items Likert-scale asking for levels of attention and eye-catching.

3.6.3.2 Measures of Credibility

Ad credibility were measured by using MacKenzie and Lutz’s (1989) three-item semantic differential scales: believable/unbelievable, convincing/unconvincing, and biased/unbiased.

3.6.3.3 Measures of Attitude toward the Brand and the Product

The ways to measure attitude toward the brand are somewhat varied among different research studies, for example, “good/bad,” “favorable/unfavorable,” and “pleasant/unpleasant” (Wang, Chou, Su, & Tsai, 2007), or “dislike/like”, “good/bad”, “not appealing/very appealing”, and “not interesting/very interesting” (Ang & Lim, 2006).

In this study, the method used for measuring attitude toward the brand and the product was an adaptation of a previously used scale (e.g., Lafferty & Goldsmith, 1999). The items used were: “I like the [brand name/product name],” “[brand name/product name] is interesting,” and “[brand name/product name] is good.” Responses were measured on a six-point scale ranging from “strongly agree” to “strongly disagree”.

3.6.4 Manipulation Checks

Manipulation checks ensure that the manipulation of experimental variables produce different meaningful levels that provide enough power to observe differences in the dependent variables (Zikmund & Babin, 2007). In this study, in order to validate the manipulation and increase internal validity, there was a need for manipulation checks to ensure that:

1) The static and animated ads being used are perceived as intended.

2) The two groups of products being used are perceived as offensive and non-offensive respectively.

3) The levels of involvement of the testing products are significantly different (high and low-involvement).

3.6.5 The Pretest

A small sample size pretest of 30-40 participants was conducted prior to the actual experiment in order to ensure that the instruments and experimental procedures function as intended. In detail, the pretest was conducted to ensure that:

1) The procedures are not confusing and the length of time provided is appropriate.

2) The questionnaire is well constructed; the question items and scales are understandable.

3) The mock web pages and banners, as well as the randomization process, function properly

4) The choices provided in the recognition test are perceived equally as favorably as the other choice.