CHAPTER 5

STUDY 1: COMPARING PERSUASIVENESS OF ADVERTISEMENTS VS. ONLINE CONSUMER REVIEWS

The objective of first study was to understand if argument quality and product involvement influences persuasive effects of information delivered through Advertisement and Online Review. Subsequently, it was examined if online reviews were superior to advertising in generating persuasiveness.

5.1 METHOD

5.1.1 Experimental Design

Data was collected using a 2 (message source: advertising versus Online Reviews) x 2 (product involvement: high versus low) x 2 (argument strength: strong versus weak) between-subject factorial design. The study used post-test single exposure procedure, also called as independent measure design. This design assured that subjects were not biased by previous exposures or fatigued of assessing multiple stimuli and filling multiple responses (Kirk, 1982; Loda and Coleman, 2005). The design consisted of eight different exposure combinations. For the purpose of the main study, 290 MBA students were recruited from a reputed business school in Hyderabad (India). Participants were motivated by providing them a 16 GB pen drive on lottery basis. One out of every 25 respondents was given a pen drive. Prior to the main study, a suitable high and low involvement product category was identified with the help of pre-tests.

5.1.2 Product and Attribute Selection
A high involvement product and a low involvement product was selected based on several pre-tests to operationalize two levels of product involvement. First, a list of 20 product categories (10 high involvement products and 10 low involvement products) was compiled from previous studies in the marketing literature. Subsequently, pre-tests were conducted to ensure that the products selected were suitable in context to this study. As part of the first pre-test, a total of 87 MBA students rated these products (10 high involvement, 10 low involvement) on four-item purchase decision involvement inventory (Mittal, 1995) (Refer to Appendix B-1 for items). Six products were chosen on the basis of the average scores given by the subjects. These products included: Alkaline Battery, Note-Book and Candy (as low involvement products), and Mobile Phone, Hard Disk Drive and Home-Theater system (as high involvement products). The next pre-test was done to find those products which were of interest to the sample population, and for which subjects considered information from both Online Consumer Reviews and Print Advertisements while making purchase decision. For this, 30 subjects were asked the extent to which they would consider Online Consumer Reviews and Print Advertisements as a relevant and important source of information. The responses were collected on a single item seven-point scale. The same 30 subjects were also asked the likelihood of their purchase for these products in the next six months. Based on the responses, Alkaline Battery was selected as low involvement product and Hard Disk Drive was selected as high involvement product for the study.

The next set of pre-tests was done to identify various attributes which consumers consider while buying Alkaline Batteries and Hard Disk Drive. The procedure followed was similar to Andrews and Shimp (1990). 78 subjects who had bought these products in the last 6
months were identified (38 for Alkaline Battery and 40 for Hard Disk Drive). These subjects were then asked to list the product benefits or features which they considered important while choosing Alkaline Battery and Hard Disk Drive respectively. Based on these responses a list of 12 arguments was constructed using five most frequently mentioned product attributes for both the products. Two separate groups of 32 and 30 subjects each then rated these arguments on three, seven-point bipolar scale items (persuasive/unpersuasive, believable/ unbelievable and convincing/ unconvincing) for Hard Disk Drive and Alkaline Battery respectively. The reliability measures (Cronbach’s alpha) for these scales ranged between 0.84 and .92, and thus were found reliable. Three arguments each with the highest and lowest mean score were finalized to manipulate the augment strength for both Advertisements and Reviews of Alkaline Battery and Hard Disk Drive (Refer to Appendix D-1 to D-4 for Advertisements and Appendix D-5 to D-8 for Reviews)

5.1.3 Stimuli Development

*Print Advertisement:* Print Advertisements for both Hard Disk Drive and Alkaline Battery containing either strong or weak arguments were designed by a professional advertising agency. In total four print Advertisements (two each for Hard Disk Drive and Alkaline Battery) were created for the study. Fictitious brand names were used for both the products to nullify any possible pre-conceived effects which could have arise in case a known brand was used. Hard Disk Drive was named as SmartX D5i while the Alkaline Battery was named Star Pro+ Alkaline Batteries. For both the products, the Advertisement used an image of the product with brand logo featured on the product. The Advertisement further mentioned a headline and body copy consisting of three product benefits which
manipulated the argument strength. The Advertisements were designed to look realistic and included brand logo as well as a tagline. See Appendix D-1 to D-4 for copy of Advertisements.

**Online Review**: Online Consumer Reviews were created and embedded in a Web-page which resembled an online review website. The website was named fictitiously as TrueReviews.com. The Web-page name and design elements endorsed credibility and truthfulness of the Review. The Web-page was created after reviewing many Online Consumer Review Websites and the layout was kept similar to existing Web-pages on such websites. The Review contained an image of the product with the company logo and detailed product description. Though the tone conveying the message in Review was less formal than Advertisement, number of arguments and argument strength remained the same as in the Advertisement. Refer to Appendix D-5 to D-8 for snapshot of the Web-pages used.

**5.1.4 Sample Demographics**

Data was collected from 290 MBA students from a reputed business school in Hyderabad, India, for the main study. Out of the total responses, 6 questionnaires were found to be incomplete, resulting in 284 usable responses. The mean age of respondents was 23.2 years. Out of total 284 respondents 149 (52.5%) were male and rest 135 female (47.5%). Although different subjects were recruited for main study and pre-tests, it was assured that the sample demographics of main study subjects were similar to demographics of subjects recruited for pre-tests. The detailed demographic profile of subjects is given in Appendix C-1.
5.1.5 Procedure

Respondents were asked to evaluate either a Print Advertisement or a Review under various exposure conditions. For subjects exposed to Print Advertisement, a booklet containing instructions, color Print Advertisement and dependent measures was provided to subjects in a classroom setting. Before starting the experiment, subjects were requested to read the instructions given on the first page of the booklet carefully. Respondents were instructed to spend necessary time (self pacing) in evaluating the Advertisement before responding to the questions and were also requested to ensure that all the questions were answered. Subjects were motivated to clear any doubts before the start of the experiment. On average the experiment lasted between 20-25 minutes. Sample questionnaire used for one of the exposure conditions is given in Appendix B-2.

The data collection procedure was slightly different in case of Online Reviews. In this case experiment was conducted in a computer lab and subjects were exposed to the Review embedded in an Online Review Web-page named ‘TrueReview.com.’ The Web-page was hosted on the local computer server of the university and was displayed to the subjects on the identical 17 inches LCD display panels. Subjects were provided with a booklet containing instructions and the dependent measures before they viewed the Review. The subjects could see the Review for desired duration, after which they filled the responses. The experiment lasted for about 25 minutes.

5.1.6 Dependent Measures

Message Credibility: Message credibly was measured using previously established seven-point five item semantic differential scale for both the Advertisement and Review (Kim, Yoon and Lee, 2010). The bipolar ends included items labeled ‘not informative/
informative’, ‘untrustworthy/ trustworthy’, ‘inaccurate/ accurate’, ‘unconvincing/ convincing’ and ‘not believable/ believable’. All the items loaded on a single factor and the scale reliability for both Advertisement and Review was adequate (Message Credibility - Review: EV=2.67; R²=0.53; Cronbach’s alpha=0.78; M=5.06; SD=0.59; Message Credibility - Advertisement: EV=3.53; R²=0.71; Cronbach’s alpha=0.89; M=4.43; SD=0.62).

*Attitude towards the Online Review and the Advertisement:* Attitude towards the Online Review and Advertisement was measured using seven-point four item scale. The items included, ‘not likeable/ likable’, ‘not interesting/ interesting’, ‘bad/ good’ and ‘not appealing/ appealing’. The scale was adapted from Pelsmacker and Bergh, 1996.

All the items loaded on a single factor that proved to be reliable. (Attitude towards Review: EV=3.04; R²=0.76; Cronbach’s alpha=0.90; M=5.033; SD=0.71; Attitude towards advertisement: EV=3.31; R²=0.83; Cronbach’s alpha=0.93; M=3.79; SD=0.78)

*Attitude towards the Brand:* Attitude towards brand was measured using seven-point semantic differential scale containing four items. The bipolar ends included ‘unpleasant/pleasant’, ‘of low quality/of high quality’, ‘unfavourable/favourable’ and ‘bad/good’. The scale was taken from Grier and Deshpande, 2001. Factor analysis confirmed all items loaded under single factor, and the scale was reliable (EV=2.52; R²=0.63; Cronbach’s alpha=0.80; M=4.66; SD=0.75).

*Purchase Intention:* Purchase intention was measured using seven-point Likert scale containing two items (Baker and Churchill, 1977). The subjects were asked their likelihood
of ‘buying’ and ‘recommendation’ the product on scale ranging from 1 (zero likelihood) to 7 (certain) (EV=1.58; $R^2=0.79$; Cronbach’s alpha=0.73; M=4.19; SD=0.74). Refer to Appendix F-2, Table 1 for scale wise mean values and standard deviation for all treatment conditions. Refer to Appendix B-2 for sample questionnaire given to subjects in one of the treatment conditions.

5.2 RESULTS

5.2.1 Manipulation Checks

Before collecting the data for the main study the manipulation checks were done as a pilot-test. This was done to ensure that manipulations were perceived correctly by the respondents (Perdue and Summers, 1986). Though, manipulation checks could be included as part of the main study, conducting manipulations as a pilot test was beneficial in two ways. First, this ensured that in case manipulations were instrumented incorrectly, the stimulus could still be modified for the main experiment. Second, collecting manipulation responses after the dependent variables had been assessed could have inhibited subjects’ ability to accurately respond to manipulation measures (Perdue and Summers, 1986).

Product Involvement: Product involvement was tested using the same four-item purchase decision involvement (PDI) scale used in pre-test (Refer to Appendix B-1). 127 subjects were exposed to the Print Advertisement and Reviews, subsequent to which manipulation measures were collected. The results indicated that Hard Disk Drive (M=5.62, SD=0.66) had significantly higher mean score of PDI than the Alkaline Battery (M=3.23, SD=0.84; F(1,253)=545.5, p<.001). As desired, a full ANOVA revealed that there were no significant interactions of the product involvement treatment with the argument strength
(F(1,253)=1.98, p=0.16) or message source (F(1,253)=.038, p=0.845). The PDI scale was found to be reliable (Cronbach’s alpha=0.95).

**Argument Strength:** To measure if argument strength was manipulated adequately, subjects were asked to rate four, seven-point bipolar items. These items were anchored as unpersuasive/persuasive, not convincing/convincing, bad arguments/good arguments and weak/strong (Cronbach’s alpha=0.92; Refer to Appendix B-1 for questionnaire used). The results indicated that the strong argument manipulation (M=4.88, SD=0.87) was significantly ‘stronger’ than the weak argument (M=3.77, SD=0.95; F(1,253)=110.34, p<.001). Additionally, there was no interaction between argument strength and message source (F(1,253)=1.136 p<.288). However, significant interaction was present between argument strength and product involvement (F(1,253)=19.33 p<.001). While low involvement subjects did not differ in their argument strength perceptions, high involvement subjects did. This indicated that though high-involvement subjects differed in their argument strength perceptions, low-involvement subjects did not.

### 5.2.2 Main Results

The first hypothesis predicted that Online Reviews would be perceived more credible in comparison to Advertisement, given that both Advertisement and Online Review have similar argument strength. To compare the differences in credibility scores of Advertisement and Review a one-way between subjects ANOVA was performed (Refer Appendix F-1, Table 1). There was a significant effect of source on message credibility at the p<.05 level for the four conditions (F(3,281)=73.89, p < 0.001). To compare the specific difference for strong and weak argument conditions post-hoc comparison using the
Tukey HSD test was performed. The test indicated that the mean score of message credibility for Review (M=4.97 SD=0.60) was significantly more than that of Advertisement (M=3.88 SD=0.81) when message contained strong arguments. Similarly, for both Hard Disk Drive (high involvement product) and Alkaline Battery (low involvement product) the mean scores of message credibility were significantly different for strong versus weak argument strength (Refer to Appendix F-2, Table 2 and Table 3). Thus, the hypothesis was supported.

The next set of hypotheses examined if strong argument lead to more persuasion than the source (Advertisement vs. Review) in case of high involvement products. Whereas, for low involvement products message source would lead to more persuasion than argument strength (strong vs. weak argument). This could be evidenced if there was a presence of three-way interaction between argument strength, product involvement and message source for the dependent measures (Hallahan, 1999). Multivariate analysis of variance (MANOVA) was used to examine the association between message source, argument strength and product involvement (IVs) for message credibility, attitude towards source, attitude towards brand and purchase intention (DVs).

Prior to conducting MANOVA tests, it was ensured that requisite MANOVA assumptions were not violated. As it is desirable for MANOVA that the dependent variables are moderately correlated (Meyer, Gampst, and Guarino, 2006), a Pearson correlation test was performed between all the dependent variables. Most of the dependent variables were moderately correlated, suggesting the appropriateness of a MANOVA (Refer Appendix F-1, Table 2). Further, Box’s M value of 162.911 was associated with a p value of .022,
which was interpreted as non-significant based on Huberty and Petoskey’s (2000) guideline (i.e., $p < .005$), indicating equality of the covariance matrices between the groups. This suggested that the results could be interpreted without manipulating MAVOVA assumptions.

MANOVA incorporating all the three independent variables (argument strength, message source and product involvement) and four dependent variables (message credibility, attitude towards source, attitude towards brand and purchase intention) was performed. The multivariate results revealed a significant overall three-way interaction effect, Pillais’ Trace=.43, $F(4, 273)=3.09, p < .016$ (Refer to Appendix F-1, Table 3). The results indicated that subjects were persuaded more due to argument strength for high involvement product, whereas, for low involvement product source lead to more persuasion than argument strength. Given the significance of overall test (MAVOVA), univariate analysis was done to examine presence of three-way interactions for specific dependent variables. The results indicated that there was a significant three-way interaction effect of IVs on message credibility ($F(1, 276)=3.98, p=0.047$), attitude towards brand ($F(1, 276)=4.76, p=<0.030$) and purchase intention ($F(1, 276)=7.34, p=0.007$). However, three-way interaction was not supported for attitude towards source ($F(1, 276)=0.85, p=0.358$). Overall the results supported hypotheses 2 and 3.

Subsequently, we analyzed difference in mean values for all the four dependent variables individually under different exposure conditions. The hypothesis 2 predicted that in case of high involvement product (Hard Disk Drive), the difference in dependent measures would be more due to difference in argument strength, rather than difference in source. The
results revealed similar patterns. Figure 1 shows that difference in mean value of all the dependent variables was more when argument strength was different as compared to a different source (Advertisement vs. Online Review). For example, for attitude towards the brand, difference in the mean value due to source was 0.56, whereas, difference due to argument strength was 0.94 (Refer to Figure 1 showing plot of difference in mean values and Appendix F-2, Table 2 and Table 4, comparing mean values).

Similarly, hypothesis 3 predicted that in case of low involvement product (Alkaline Battery), the difference in dependent variables would be more because of the difference in source, rather than the difference in the argument strength. It was found that, apart from attitude towards brand (difference due to argument strength=0.30, difference due to source=0.15), the difference in other dependent variables were higher due to the source as compared to the argument strength (Refer to Figure 1 showing plot of difference in mean values and Appendix F-2, Table 3 and Table 5, comparing mean values). This analysis further supported hypotheses 2 and 3.

The next set of hypotheses specifically compared the main effects of the source on the dependent measures. Hypothesis 4a stated that attitude towards review would be more than attitude towards advertisement when the level of argument strength was same. Whereas, hypothesis 4b stated that attitude towards review would be more than attitude towards advertisement when level of product involvement was same.
Figure 1: Plot Comparing Differences in Mean Values of Dependent Measures across Treatment Conditions
Independent sample t-tests were performed to compare the cell-wise means. Equality of variance was checked using Levene's test. For some of the comparisons groups where assumption of equal variance was violated, alternative analysis was done using Welch’s t-test.

The results in Appendix F-2, Table 6 show that attitude towards review (strong argument: M=5.57, SD=0.63 and weak argument: M=4.49, SD=1.05) was higher than attitude towards advertisement (strong argument: M=4.75, SD=0.87 and weak argument: M=2.99, SD=0.90), and this difference was significant (strong argument: t(139)=6.38, p<.001 and weak argument: t(141)=9.17, p<.001). Further, attitude towards Review (Hard Disk Drive: M=4.86, SD=1.29 and Alkaline Battery: M=5.20, SD=0.58) was significantly higher as compared to attitude towards advertisement (Hard Disk Drive: M=3.88, SD=1.22; t(141)=4.12, p<.001 and Alkaline Battery M=3.84, SD=0.91; t(139)=10.54, p<.001) for both Hard Disk Drive and the Alkaline Battery. Thus, both hypotheses 4a and h4b were supported.

The next hypotheses examined if Online Reviews were able to create stronger levels of attitude towards brand as compared to the Advertisement. Hypothesis 5a stated that subjects exposed to Review will have higher attitude towards brand than subjects exposed to Advertisement given that argument strength is equal. Appendix F-2, Table 3 shows that though in case of weak argument attitude towards brand was more when subjects were exposed to Review (M=4.63, SD=0.71) as compared to Advertisement (M=4.07, SD=0.71; t(141)=4.48, p<.001). However, in case of strong argument this difference was not
significant (Review: M=5.05, SD=0.53 and Advertisement: M=4.89, SD=0.58; t(139)=1.62, p=0.107). Therefore, hypothesis 5a was partially supported.

Additionally, hypothesis 5b predicted that attitude towards brand would be higher when subjects were exposed to Online Consumer Review as compared to the Advertisement, for both high and low involvement products. The results in Appendix F-2, Table 4 show that attitude towards brand for Hard Disk Drive was significantly higher in case of Online Review (M=4.92, SD=0.63) in comparison to Print Advertisement (M=4.35, SD=0.93; t(141)=4.24, p<.001). However, for Alkaline Battery though the mean score was higher for Online Review (M=4.75, SD=0.69) than Print Advertisement (M=4.60, SD=0.62), this difference was not significant (t(139)=1.32, p=.188). Thus, hypothesis 5b was partially supported.

Similarly, hypothesis 6a and hypothesis 6b examined if Online Reviews were able to create higher purchase intention towards brand as compared to the Advertisement when level of argument and purchase involvement was same. Results in Appendix F-2, Table 7 reveal that, though in the case of weak argument purchase intention was significantly higher when subjects were exposed to Review (M=4.41, SD=0.58) in comparison to Advertisement (M=3.49, SD=0.78; t(141)=7.98, p<.001), these differences were not significant when argument was strong (Review: M=4.49, SD=0.47 and Advertisement: M=4.39, SD=0.61; t(139)=1.07, p=0.284). Thus, hypothesis 5a was partially supported and results were contradictory to our expectations. However, Review was able to create significantly stronger purchase intention perceptions (Hard Disk Drive: M=4.46, SD=0.56 and Alkaline Battery M=4.43, SD=0.49) as compared to Advertisement (Hard Disk Drive: M=3.78,
SD=0.98; t(141)=5.05, p<.001 and Alkaline Battery M=4.09, SD=0.61; t(139)=3.67, p<.001) for both high and low involvement products (Refer to Appendix F-2, Table 5. Therefore, hypothesis 5b was supported.