

Subliminal Advertisment and its Effect on Consumer Purchase Intentions

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Abstract

The effectiveness of subliminal advertising on consumer behavior involves a lot of ambiguity and is still under scrutiny (*Shaqeel Ahmad Sofi et al., 2018*). On one hand there are concrete shreds of evidence researchers claiming the effectiveness of subliminal advertising on different aspects of consumer behavior; on the other hand, there are pieces of evidence which effectively manage to discard those claims (*Tara Santora, 2020*). The study aims to measure the difference in 'Purchase Intentions' of consumers after presenting subliminal stimuli via advertisements. The study adopts an experimental research design to accomplish its objectives. The participants under the experiment were young college-going students, all of them studying in a coaching academy in the district of Jharsuguda. The product under the experiment is Gold Jewellery that comes under the category of Specialty Products. Based upon previous studies, a relationship model was developed to measure the purchase intentions of the participants under the experiment. The relationship between the variables of the model was subjected to model fitness and path analysis. After qualifying through the Structural Equation Model test, the hypotheses under the experiment were statistically tested and results were reported. Paired t-test was used to find out the effect of subliminal stimuli on consumer purchase intentions. The results of the experiment revealed that there was no significant difference in the purchase intentions of the participants after being exposed to subliminal stimuli. However, there was a significant difference in 'emotions' and 'perception' of the participants after being exposed to subliminal stimuli.

Keywords: *subliminal, consumer behaviour, purchase intentions, paired t-test, perception, emotions*

INTRODUCTION

The term 'subliminal' comes from the Latin word '*limen*' which means '*threshold*'. The term

subliminal as defined by *Webster's dictionary* means "*existing or functioning below the threshold of conscious perception*". The term subliminal advertising means an advertising technique that uses messages/cues that are not perceived by the conscious mind of the consumers but are registered and stored in the subconscious minds of the consumers. "Subliminal advertising is a technique of exposing consumers to product pictures, brand names, or other marketing stimuli without the consumers having conscious awareness. Once exposed to a subliminal marketing stimulus, the consumer is believed to decode the information and act upon it without being able to acknowledge a communication source" (Charles Trappey, 1996).

The concept of subliminal advertising traces its history back to the year 1957 when James Vicary, a researcher, claimed to observe a dramatic increase in the sales of Popcorn and Coke after the phrase 'Eat Popcorn and Drink Coke' was subliminally flashed on the movie screens in New Jersey. The phrase was flashed on the movie screen of a movie theatre during the interval for few days. Vicary revealed that the technique hiked the sales of coke and popcorn tremendously. However, Vicary later on, admitted that the numbers were forged and inauthentic (Timothy E Moore, 1982). Since then, subliminal advertising has been a matter of controversy and debate leaving the consumers confused and perplexed. The main aim of this study is to bring awareness amongst the people about these practices so that they are aware of the information they are being continuously exposed to via advertisements, movies, pictures, logos etc.

OBJECTIVES

1. To compare the "Emotions" of consumers before and after the presentation of subliminal stimuli
2. To compare the "Perception" of consumers before and after the presentation of subliminal stimuli
3. To compare the "Purchase Intentions" of consumers before and after the presentation of subliminal stimuli
4. To test the relation between "Attitude towards subliminal advertisement" & "Purchase Intentions" with the help of a Structural Equation Model.

REVIEW OF LITERATURE

One of the most recent studies on the effectiveness of subliminal advertising on consumer behavior was done by *Liwei Hsu Yen & Jung Chen* in the year 2020 (November). The study aimed at determining the influence of subliminal advertising on consumer's choices and preferences. An experiment was conducted under the study with sixteen participants who were asked to rate their preferences on hotel rooms. The results of the study showed that consumer's choice of hotel room selection was highly influenced by the subliminal stimulus.

Another noteworthy contribution in the field of subliminal advertising was done by *Strahan, Spencer, and Zanna*, in the year 2002. The study was aimed at assessing the influence of

subliminal priming on goal-related cognition. The study underwent an experiment with “soft-drink” as the primed product and “thirst” as the goal/motivation. The results of the study showed that for the thirsty participants; subliminal priming did persuade them to choose the product. However, for those who were not thirsty, i.e., were not motivated towards the product; subliminal priming did not persuade them to choose the product.

Jean- Baptiste Legal, et l., 2011 conducted a similar study to determine the effectiveness of subliminal advertising on consumer choice, provided that there was a goal towards the primed product. The results of the study showed that the participants whose goals were subliminally primed to trust were positively influenced by the product and also showed better evaluation of the product. On the other hand, the participants who were not subliminally exposed; were relatively less influenced by the product

Veltkamp, Custers, and Aarts, in the year 2010 conducted a study that served as an extension to previous studies which claim that the current needs/goals of consumers are pre-requisites in determining the effectiveness of subliminal advertising. This study aimed at finding out the effectiveness of subliminal advertising on consumer behavior even when the priming does not match the current needs of the consumers. The results showed that subliminal advertising was capable of instilling a goal/motivation/need in the minds of consumers towards the primed product. Although a surprising number of researchers have proved subliminal advertising as an effective tool to influence the behavior of consumers, there are enough shreds of evidence that stand against those claim.

Pratte, Michael S, Rouder, Jeffrey N, 2009 aimed at overcoming the difficulties of prime-classification tasks by manipulating the ease of the prime classification. The study worked under the assumption that subliminal priming occurs when a subliminal prime influence the classification of a subsequent target and because primes are intended to be subliminal/unconscious, the prime classification task is comparatively difficult than the target classification task. The results of all the three experiments conducted under the study showed that there was no significant effect of priming on the participants. The study proves that subliminal advertising does not influence consumers.

A.Ilse, et al.,2020, with the help of their research, aimed at finding out the effect of unseen food images (subliminal stimuli) on the behavior of hungry viewers. The results of the experiment showed no effect of subliminal messages on the participants. The changes which were recorded in the behavior of the participants turned out to be because they were hungry and not because they were exposed to a subliminal stimulus.

Similar work was done by *Franziska Giller et al*, in the year 2020 to retest the results of previous demonstrations based on the above hypothesis. The main aim of the study was to assess the influence of subliminal information on conflict resolution as well as on goal-related behavior. The experiment conducted under the study combined Electroencephalogram signal and Electroencephalogram beamforming approaches. The information obtained from their combination was used to modulate theta oscillations. The results of the influence of subliminal information on conflict resolution showed that subliminal information fosters an adverse impact on conflict resolving capabilities of the human brain.

Gaelle M Bustin et al, in the year 2012 provided evidence that personality traits that were associated with responsiveness to supraliminal or conscious cues had a similar impact on the responsiveness to subliminal or unconscious reward cues. The study aimed at studying an individual's responsiveness towards unconscious cues. The results of the study showed that Low Novelty Seeking individuals performed better when they were exposed to unconscious information whereas High Novelty Seeking individuals showed similar performances when exposed to subliminal and supraliminal cues.

HYPOTHESES

The idea of 'Subliminal Advertising' and its influence on Consumer Behavior has remained controversial for a very long period. Even though there are robust pieces of evidence that claim the effectiveness of subliminal advertising, (Liwei Hsu Yen & Jung Chen, 2020 November) there is also a whole bunch of evidence that stands in contrast to those claims (Andreas Reiner, 2017).

When it comes to awareness, the literature reveals that the awareness level of people about subliminal advertising is insufficient (Benice Willemse, 2017). The main purpose of this study is to make people aware of such practices and find out whether or not these practices influence the behavior of people. To accomplish the purpose of the study, few presumptions were made based on the literature reviewed. A hypothesis is a presumption, the veracity of which has to be backed by reliable data, appropriate analysis, and authentic literature. Based on the literature review, the following hypotheses were framed:

H1o: There is no significant difference in the "Emotions" of the participants after the presentation of subliminal stimuli.

H1a: There is a significant difference in the "Emotions" of the participants after the presentation of subliminal stimuli.

H2o: There is no significant difference in the "Perception" of the participants after the presentation of subliminal stimuli.

H2a: There is a significant difference in the "Perception" of the participants after the presentation of subliminal stimuli.

H3o: There is no significant difference in the "Purchase Intention" of the participants after the presentation of subliminal stimuli.

H3a: There is a significant difference in the "Purchase Intention" of the participants after the presentation of subliminal stimuli.

H4a: Attitude towards subliminal advertisement has a significant relationship with the intentions to purchase.

METHODOLOGY

Experimental research design is applicable in areas that are high in causal/internal validity, i.e. when a researcher aims at understanding the cause and effect relationship between

variables (Tanner, 2018). This type of research is considered to be the most thorough but suffers from a lack of validity because the variables can be manipulated or controlled (Gravetter and Forzano, 2009). To find out the difference in the purchase intentions of consumers after the presentation of subliminal stimuli, advertisements with two categories of Consumer Products were chosen as subliminal stimuli.

Products under the experiment

The study uses Consumer Products to study the intentions of the consumers. All products and services meant for the ultimate users, come under the category of Consumer Goods. In marketing, Consumer goods can be roughly divided into three different classes. Convenience goods are the low-priced goods that consumers usually purchase frequently, often on impulse, with little time and effort. E.g. Toothpaste, newspapers, candy bars, etc. Shopping goods are less frequently bought by the consumers and the consumers carefully compare shopping products based on price, style, quality, suitability, etc. E.g. Furniture, Air Conditioner, Home Appliances, etc. Specialty goods are high-priced, expensive goods that are infrequently bought by consumers. Consumers make special purchasing efforts to buy specialty products. E.g. expensive cars, jewelleries etc. (Sonja GrabnerKrauter, 2018).

In the present study, only one category of Consumer Product i.e., Specialty Products has been taken into consideration. The reason behind choosing this category of consumer product was the absence of a renowned habitual brand. Subliminal advertisements have been shown to show their maximum effects when the primed item is not a renowned and habitual brand. In the absence of a habitual brand, the primed advertisement is more consumed. (Thijs Verwijmeren, 2014). To eliminate the presence of habitual renowned brands, a local brand was chosen for the experiment. As, most of the researches in the past were done on renowned Convenience products such as toothpaste, soaps, soft drinks, etc., (Soomro & YasirAli 2018); choosing a local brand would add novelty in the field of Subliminal Marketing (Strahan, Spencer, and Zanna, 2002). Gold Jewellery items were chosen as a representative for Specialty products.

Advertisement clips

To achieve the purpose of the study, a freelance advertising expert, running a local advertising business, was contacted. The freelance advertising agency runs under the brand name 'AdverTV', which prepares advertisements for local stores and showrooms in the district of Jharsuguda, Sambalpur & Rourkela. "Banka Jewelers", selling Specialty products such as Gold jewelry items was chosen under the experiment. The researcher asked AdverTV to create a replica of these two advertisement clips by embedding subliminal stimuli in them. The researcher purchased two sets of the advertisement clips, one with subliminal stimuli and the other without any subliminal stimulus. Telephonic consent from the owner of the store was taken by the researcher.

Subliminal Stimuli Both auditory and visual subliminal stimuli were used under the experiment. The auditory subliminal stimulus chosen under the experiment was a piece of customized relaxing music masked with positive subliminal affirmations. The researcher

approached an expert subliminal maker, running a renowned Youtube channel under the name “HypnoDaddy”, with approximately 1.5 Lacs subscribers (https://www.youtube.com/channel/UCIpBFvLxW5x8W7qVgQJae_). The channel is specifically dedicated to subliminal music. The expert is a professional subliminal expert and creates customized subliminal music for his clients addressing a variety of issues. The expert was contacted via e-mail and was asked to prepare a piece of customized subliminal music with hidden auditory positive affirmations such as “ I love the product”, “The product is amazing”, “The store looks wonderful”, “Buy it” etc. Positive subliminal affirmations are a great way to influence the subconscious mind of an individual for a changed behavior (Karam, et al. 2017)

The visual subliminal stimulus used under the study was a smiling face “emoticon”. Emoticon refers to the meta communicative visuals (Maganari and Dimare, 2017) represented by human facial expressions, also known as an Emoji (Rodrigues et al., 2018). Emojis can solve the problem of insufficient non-verbal cues (Wange et al., 2014). In recent years, graphical emojis have become a popular tool in advertisements (Das et al., 2019). Li et al. found that when service providers use emojis on online consumer reviews (OCR), of online travel agencies (OTA), customers tend to appreciate the service more. Positive emojis can generate a positive impact on target consumers and increase their willingness to purchase hedonic products (Das et al., 2019).

Subliminal advertisement

The researcher approached “AdverTv” to create two sets of similar advertisements), one without any subliminal stimulus and another with subliminal stimuli. Both auditory & visual subliminal cues were strategically merged within the advertisements. The auditory subliminal stimulus was masked beneath the audio of the advertisement whereas the visual stimulus was flashed 5 times in between the advertisements for a fraction of 0.03 milliseconds (Liwei Hsu, Yen-Jung Chen, 2020). The flashes were not visible to the naked eye of the viewer unless the viewer was aware of the presence of any such cue.

Research Instrument

The research instrument used under the experiment was closed-ended questionnaires. Based on prior studies, a five-point Likert scale was chosen as the scale for the questionnaires (Sofi et al., 2018).

Sample Participants

The sample participants under the experiment were students, all above 18 years of age. To accomplish more precise results and to eliminate the existence of other control variables, all the participants chosen, were college-going Commerce students. Non-probability Judgmental sampling was used to choose the sample. All the participants were in the 3rd year of their Graduation and hence their ages ranged between 21-22 years. There were both male and female participants, all of them studying in the same coaching institute, in the district of Jharsuguda. The sample size was calculated as 45. G Power 3.1 software was used to find out the appropriate sample size for the experiment. As the entire experimental procedure was

meant to continue for 9 days in a row (barring Sunday), the probability that all 45 participants would show up every single day was quite low. Therefore, the researcher oversampled the participants by taking 60 students as subjects to the experiment.

Step-by-step experimental procedure

Before the commencement of the experiment, the consent of the participants was taken by the owner of the academy. The participants were not informed about the hidden stimuli embedded in advertisements. The experiment took place for 9 days, commencing from 05/04/2022 till 13/04/2022. The initial experiment was conducted on 60 participants. The step-by-step experimental procedure is described in Table-1

Date	ExperimentDay no.	Procedure	AdvertisementShown With/without subliminal stimuli
05/04/2022	Day- 1	The participants were shown the 'Furniture' advertisements followed by the 'Jewelry' one. The time gap between the two advertisements was kept 15 minutes for the entire experiment (suggested by the subliminal professional). The advertisements shown to the participants on Day 1 did not contain any subliminal stimulus. They were non-manipulated advertisements. After each advertisement, the participants were asked to fill up questionnaires in response to the viewed advertisement. The responses of the participants were collected by the researcher.	Without subliminal stimuli
06/04/2022	Day-2	The same participants were shown both the advertisements ("Furniture" & "Jewelry") again, but the advertisements shown on Day 2 were the manipulated advertisements with hidden subliminal stimuli. The participants were unaware that they were being presented with a different advertisement with hidden messages. They were told that the advertisements were the same as the previous day.	With subliminal stimuli
07/04/2022	Day-3	The procedure carried out on Day-2 was repeated.	With subliminal stimuli
08/04/2022	Day-4	The procedure carried out on Day-2 was repeated	With subliminal stimuli
09/04/2022	Day-5	The procedure carried out on Day-2 was repeated	With subliminal stimuli
10/04/2022	Day-6	The procedure carried out on Day-2 was repeated	With subliminal stimuli
11/04/2022	Day-7	Sunday- No experiment done	-
12/04/20	Day-8	The procedure carried out on Day-2 was repeated	With subliminal stimuli
13/04/2022	Day-9	The participants were requested to fill the questionnaires again on Day-8 and submit their responses based on the two advertisements that were being shown to them for the past 7 days.	

The participants were exposed to subliminal stimuli continuously for 7 days because a subliminal stimulus gives maximum results when repeated again and again at regular intervals (John R Vokey et al., 1985).

Results of the responses collected from Day 1, were compared with results of the responses collected on Day-9.

DATA ANALYSES AND RESULTS

Demographic details of the participants

Out of 60 participants, 50 participants were marked present throughout the experiment, i.e., for the entire 9 days. The rest 10 participants remained absent one day or the other. The responses of the 10 inconsistent participants were discarded by the researcher. The responses of 50 participants were entered into an excel spreadsheet by the researcher. Missing frequencies, improper coding, and unengaged responses were checked and modified. Out of the remaining 50 responses, 45 responses were chosen by the researcher using purposive sampling. Out of the 45 respondents, twenty-four were male participants, whereas the remaining twenty-one were female. The age of the participants ranged between 21 years- 22 years. Thirty-nine out of the forty-five participants were 21 years old, and the remaining six were 22 years old. All the participants were in their third year of college and were studying Bachelor of Commerce. Each participant was a student same coaching institute running in the district of Jharsuguda. Finally, all the participants were residents of Jharsuguda. The demographic details of the participants are mentioned in Table-2

Demographic details of the participants

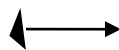
Items	Percentage
GENDER	
Male- Female	53.33%
	46.67%
AGE	
21 years	86.66%
22 years	13.33%
EDUCATIONAL QUALIFICATION	
Bachelor of Commerce- 3 rd Year	100%

Relationship Model

The primary purpose of the experiment was to find out the effectiveness of subliminal advertising on the Purchase Intentions of consumers. However, according to Rosanne Weber, 2010, it is advisable not to measure the Purchase Intent of consumers directly; as purchase intention builds as a by-product of Consumer Attitude. Rone Bredahl 2001 also studied the determinants of consumer purchase intentions, and the results of the study revealed that

Consume attitude has a direct relation with Consumer purchase intention. Ghada W El-tazy & Hesham O Dinana , 2018 revealed that humor and hidden meanings in advertisements have a positive effect on consumer attitude which has a positive strong effect on the probability to purchase yet the consumer attitude effect on actual purchase. Morwitz (2012,) in his study revealed that purchase intention in consumers is dependent upon the behavior and attitude of the consumers. Based on these prior studies, the researcher hypothesized:

Attitude towards subliminal advertisement has a significant relationship with the intention to purchase



Emotions + Perception = Attitude

Purchase Intention

This relation between variables is validated by the researcher through Confirmatory Factor Analysis (CFA) & Path Analysis, together known as Structural Equation Model (SEM).

Hypothesis test

After qualifying through the model fitness test and relation test between the variables, a paired t-test was performed to check whether there is a difference in the Purchase Intentions of the participants before and after the presentation of subliminal stimuli.

Before performing paired t-test, the researcher checked whether the differences between pairs (Before & After) were normally distributed. The mean responses before and after the presentation of subliminal stimuli were individually calculated and the normality of the mean differences was checked using One sample KS test (Kolmogorov- Smirnov test) and a Shapiro-Wilk test. The results of the KS test & Shapiro-Wilk test showed a p-value greater than 0.05, which means that the dataset was normally distributed (Stephanie,2016). Table 7 reports the normality results of the mean difference.

Table-7 Normality test results

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Difference	.120	13	.200*	.956	13	.691

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Differences in “Emotion”, “Perception” & “Purchase Intention” of the participants, before

and after presenting subliminal stimuli were individually tested to get detailed results. Firstly, a paired-sample test was performed to test whether there is a significant difference in the “Emotions” of the participants before presenting the stimuli and after presenting the stimuli. Secondly, paired sample t-test was performed to test any difference in the “Perception” of people, before and after presenting subliminal stimuli. Finally, the “Purchase Intention” of the participants, before and after presenting subliminal stimuli was compared using a paired sample t-test. The responses collected from Day-1 of the experiment (before presenting subliminal stimuli) were compared with the responses collected on Day-9 of the experiment (after 7 days of regular exposure to subliminal stimuli). The results of the experiment revealed a significant difference in the “Emotions” & “Perception” of the people after being exposed to subliminal stimuli (Table-10 & Table-11). Before performing paired t-tests, the mean & standard deviation for each of the factors were calculated (Emotions-Table-7, Perception- Table-9 & Purchase Intention- Table-11). Paired t-test p-value for “Emotions” and “Perception” was calculated as 0.000 ($p < 0.05$) & 0.039 ($p < 0.05$) respectively. P-value greater than 0.05 rejects the null hypothesis at a 5% level of significance (Yusop, Johari, 2015). Table-8 & Table-10 show paired t-test results depicting significant differences in emotions & perception of the participants after being exposed to subliminal stimuli.

Table-7 Mean & Standard Deviation- Emotions

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Before	2.34340	5	.363158	.162409
Pair 1 After	3.37620	5	.556777	.248998

Table-8 Paired t-test results of difference in ‘Emotions’ after presenting subliminal stimuli

Paired Samples Test

		Pair 1
		BEFORE-AFTER
Paired Differences	Mean	-1.032800
	Std. Deviation	.217464
	Std. Error Mean	.097253
	95% Confidence Interval of Lower the Difference	-1.302818
	Up	-.762782
T	per	-10.620
Df		4
Sig. (2-tailed)		.000

Table-9 Mean & Standard Deviation- Perception

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Before	3.26667	3	.349257	.201644
After	3.88167	3	.295595	.170662

Table-10 Paired t-test results of difference in 'Perception' after presenting subliminal stimuli

Paired Samples Test

		Pair 1
		BEFORE-AFTER
Paired Differences	Mean	-.615000
	Std. Deviation	.215752
	Std. Error Mean	.124565
	95% Confidence Interval of Lower	-1.150958
	the Difference Upper	-.079042
T	r	-4.937
Df		2
Sig. (2-tailed)		.039

Table-11 Mean & Standard Deviation- Purchase Intentions

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Before	3.09650	2	.074246	.052500
After	4.13250	2	.202940	.143500

Table-12 Paired t-test results of difference in ‘Purchase Intentions’ after presenting subliminal stimuli

Paired Samples Test

		Pair 1
		BEFORE-AFTER
Mean		-1.036000
Std. Deviation		.277186
Paired Differences Std. Error Mean		.196000
95% Confidence Interval of Lower		-3.526416
the Difference	Upper	1.454416
T		-6.286
Df		1
Sig. (2-tailed)		.075

The results from Table-6.19 provide evidence in favor of the null hypothesis. This means that there is no significant difference in the “Purchase Intention” of the participants after presenting subliminal stimuli, in regards to Specialty Products.

CONCLUSION

The results of the study showed a significant difference in the intensity of ‘emotions’ within the participants after being exposed to subliminal stimuli. This means that subliminal stimuli do influence the emotions of people. A subliminal stimulus, when repeated over a while, can alter the intensity with which a certain emotion (happy in this case) is experienced by an individual. The results of the study observed a change in the “perception” of the participants towards the advertisement, after repeatedly being exposed to subliminal stimuli. This means that a subliminal stimulus also creates a significant change in the way an individual perceives an advertisement. However, the “purchase intentions” of the participants did not show a significant difference. Similar results were observed for both categories of consumer products chosen under this study. The point to be noted here is that- a significant difference in the emotions and perception of the participants signifies a significant difference in the attitude of the participants, and it has already been established by the researcher that attitude has a direct relationship with “purchase intentions”.

The reason that ‘Purchase Intentions’ did not show a significant difference, could be the “period” of the experiment. To completely sink into the subconscious minds of the consumers, subliminal messages can take up to 7 days to 6 months (Alison Silver, 2020). This was one of the limitations of this study as the researcher couldn't continue the experiment for an extended period due to the current pandemic situation. Also, in both the categories of consumer products, the ‘Purchase Intentions’ of the participants showed a difference that was very close to the accepted cutoff of 0.05 (Furniture & Home

Appliances- 0.067 ~ 0.05, Gold Jewelry- 0.075 ~ 0.05). These results indicate that subliminal advertisements do influence consumer behavior.

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