

# Creating Desire: Transformational Advertisings' Effect on Different Age Groups

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**Abstract**— Thirty six American companies spend a whopping one billion dollars on advertising each year. Most of these companies are investing in high-production and creative short commercials with the help from famous actors and creative producers alike. Thus, understanding advertising audiences to optimize revenues is crucial to justify these outrageous costs. In particular, advertising companies often believe that to target youth and young adults, they need entertaining advertisements that romanticize a product more than communicating its utilities. However, psychology research shows that as people age, they value their emotions and life experiences much more than facts and materialism. This research experiment sets out to test the hypothesis that emotionally oriented advertisements, called transformational advertising rather than factually oriented or informational advertising, are more effective for older consumers. The survey results were primarily obtained through online distribution and on-the-street distribution for a more demographically balanced sample group. The hypothesis is tested through a survey designed to simulate advertisement viewership and later on purchase decisions. Null hypothesis testing was used to analyze data for p values. From the results found, it seems that while there is some statistically significant differences in age for transformational versus informational advertising effectiveness, there is in fact a more statistically significant difference in responsiveness towards advertising. Data supports the fact that older age groups are more responsive towards advertisements. However, because there are many uncontrollable factors of the observations made (discussed further in the Discussion and Conclusion section), more in depth research should be done to mitigate influences from uncontrolled variables and factors.

**Index Terms**—informational advertising: advertising that teaches consumers with knowledge transfer that occurs through blunt description, transformational advertising: advertising that teaches consumer subtly with stories and appeals to emotions, “transforming” the experience a consumer has with a product [3].

## I. INTRODUCTION

Advertising is not well understood, for it is also the marketing element that arguably has the longest delayed effect on sales. That is because a long time passes after a consumer first views an ad and before he actually chooses to buy a product. Thus, level of ad recall must be understood in order to analyze ad type effectiveness. As for what types will be

discussed, marketers agree that all advertising falls on a scale between informational versus transformational ads. These two types are also referred to by marketers as thinking versus feeling, factual versus evaluative, objective versus subjective, argument versus drama, and instrumental versus expressive [3]. Transformational ads are those that convince consumers to buy a product by telling a story, conveying emotions and thus “transforming” the experience of the product. On the other hand, informational ads are direct and transfer information about the utility of a product. Because informational and transformational ads are effective for different reasons affecting memory recall, which will be discussed, it is hypothesized that older consumers are more receptive to transformational advertising.

In the background section of this paper, the main contributing factors that influence ad recall and effectiveness, the attributes that people use in determining the scale for transformational and informational advertising, and the reasons for the hypothesis will be analyzed. Next, the methodology used to test the hypothesis will be explained, and lastly, the results will be analyzed and discussed. The results found can help companies reconsider the ways in which they advertise depending on the age group they are targeting.

## II. BACKGROUND

### A. How Advertising Works in Memory

Advertising cannot be discussed without talking about memory, because people’s recall of ads is what makes them effective and valuable. Information is encoded and then stored as a network of nodes. Nodes are concepts or information that are linked with varying strength. There are networks in both short-term memory (STM), which is temporary and limited in capacity, and long-term memory (LTM), which is virtually unlimited. Activation of nodes occurs when the information is first encoded into memory or when nodes linked closely or strongly to the node are activated. Nodes linked strongly and closely are usually ideas that are conceptually related and thus organized together in the brain. When activation of a node reaches a certain threshold level, that information is recalled or remembered, brought

to the person's consciousness. Thus, the more nodes and links there are, or the more information there is in memory, the less likely it is for activation to reach the correct threshold. That is because there are more competing associations for activation levels.

Memory can be broken into three parts--encoding, storage, and retrieval. Encoding memory is the first, crucial step to memory. It creates the converts the perceived information into a construct that can be stored as the nodes and connections described previously. Lastly, recall or retrieval is essential as well. In fact, forgetting information is not usually caused by inability to encode or store, but rather an inability to retrieve the information [9].

These stages will be viewed in their relation to advertisements, and then specifically emotional versus informational advertisements.

#### *B. Advertisement Memory Trace: Encoding, Storing, and Recall*

Encoding advertisements to memory can be affected by two factors--the level of viewer engagement and the direction in which the ad focuses its communication. First, level of engagement is categorized by the "processing intensity." That is, high intensity processing occurs when the consumer is deeply stimulated and focused on the advertisement. Low intensity, as can be inferred, occurs when the viewer has no motivation to process the ad.

However, even if the consumer pays attention with high intensity, the way they encode the information also depends on the two types of "processing directions" or communication focuses. Whether the advertiser is intentional or not, an ad falls under a spectrum of ad-directed or brand-directed advertisements. Brand-directed means viewers will encode the ad with brand-specific information. They will encode the ad information as nodes with strong links to the brand name or logo. On the other hand, ad-directed, high intensity viewership causes the consumer to remember certain aspects of the ad itself, and they may not make the association of the ad with the brand. They will represent the ad in their mind, or store it to memory, with ad-specific information. Perhaps it was just a very entertaining ad. The danger in ad-directed advertisements is that there will be a weak association between the ad and brand. Recall of an ad requires a cue. Usually, this cue is the product or brand name or logo. With weakly associated ad-directed marketing, the company risks poor recall. This can be mitigated if companies can create some form of cue that triggers

consumers to activate the nodes that contain the ad-specific information stored. In choosing the retrieval cue, research has found that it does not matter how close in definition or idea the cue is to the product or ad itself. The proximity of the original encoding is all that is critical. For instance, in experiments, subjects were given two weakly associated words like "black" and "train." In asking subjects to recall words from the list, "train" was a much better cue for the word "black" than the more usually associated word "white." Ultimately, retrieval is the most important aspect of effective advertising, since brand choice decisions do not happen during ad exposure, but rather the moment consumers are forced to make a brand choice, often when they are buying a product [8].

#### *C. Viewer Responses: Transformational versus Informational Advertisements*

Besides memory, consumer response to ads are important for evaluating advertisement effectiveness. Response is, as will be discussed, closely related to memory as well. Most researchers agree that response elements have two major types--affective or feeling versus cognitive or thinking. Affective responses will consist of the creation of a mood state, while cognitive responses will consist of counterarguments, support arguments, source bolstering, curiosity, abstraction, inference, or positive and negative reaction to ad execution. Because of the two responses to advertising, it is widely accepted to categorize ads by the types of response they evoke. While they go by many names, in this paper, they will be referred to as transformational, or affective, and informational, or cognitive, advertising.

Research also shows there are two ways of understanding products--more materialistic products and more experiential products. Experiential products are products people buy for the experiences they offer. These products are products that help create good memories to look back on, while materialistic products are products bought for their direct utility. All consumers view products on a scale of experiential versus materialistic in a different way. On an extreme, for instance, traveling is viewed by most as an experiential product. People invest in traveling for the experiences they can have from them [6]. Thus, the two types of advertising -- transformational and informational--mirror these two types of products.

The goal of transformational advertising is to "transform" the consumers' emotional experience

with a product, instead of focusing on the actual utility of the product itself. Transformational advertising is riskier for companies because the goal is to subtly change consumer experience. There is a reduction in control of information conveyed because consumers' emotional reactions are less predictable. Transformational ads can lead towards being too ad-directed. Thus effective transformational ads must be clear in their story-line and somehow create, perhaps through a retrieval cue, a strong-association between brand and ad. While there are disadvantages, transformational ads have advantages because their message is subtle. Companies choose to use them because they often promote high intensity processing. Consumers are more incredulous of an ad when they realize it is intentionally trying to convince them with direct information about a brand and more trusting of subtly convincing ads.

#### *D. Age Effects on Memory, Response, and Product Advertised*

As age increases, cognitive skills and STM storage ability decrease [11]. This will affect how older people encode, store, and recall memory. Because there are many more nodes of information already in memory storage, the likelihood of activating a certain node decreases, affecting the way in which they recall memory. As a result, older people are more selective in what they actually pay attention to and encode in memory. Furthermore, psychologists have experimented and confirmed in experiment that older people see time as limited rather than expansive. That is, their perception of the future is that life is short. This is the default view for older consumers, while younger consumers see the future as expansive or limitless. This default, non-conscious perception of life affects how people approach processing information. They adopt a more subjective view and emotional-related goals for they understand time is limited, while younger consumers are more objective and adopt knowledge-related goals that can help younger people prepare for the future. Understanding time is limited, older people integrate emotions more heavily in how they encode information [11]. In fact studies show that emotions are heavily linked with memory, and highly emotional experiences improve memory. Thus, older people may also focus on emotions so much because it is the emotional experiences that they remember more readily. Thus, the hypothesis is naturally then that older consumers' processing intensity increases when the ad is emotionally charged or emphasizes positive emotions. Meanwhile, younger consumers

will have higher processing intensity in ads that are more knowledge-oriented.

Lastly, because older consumers view life through a time limited evaluation, they are hypothesized to be more likely to value products that seem more experiential rather than materialistic products [6]. With more life experiences, older people are more likely to recognize, and rightly so, that experiential products are more valuable than materialistic products. Experiential products are, after all, what all people will rate, when prompted, as more valuable, as the positive effects and benefits from an experiential product stay with a person longer than those of a materialistic product [6]. Since transformational advertisements focus on transforming the experience one has in using a product, they present the products they are trying to sell in a more experiential way. This information also supports the hypothesis that transformational advertising is more likely to be effective with older consumers.

### III. EXPERIMENTAL METHODS

To test and confirm the ideas behind this hypothesis, a brief survey was created compiling advertisements that ranged on the scale of more dramatic, transformational advertisement to more informational advertisement. Survey results were gathered on online and in person distribution. Results were motivated with entries in a raffle for \$25 gift cards. While research in the past seems to be focused on the two extremes of young college students and older people entering or already in retirement, this experiment also seeks to test the level and age at which people become more susceptible to emotional advertising. This survey was created to be both short and effective, given the resources and time available. It is available in the appendix for guidance through this section.

First, the ads used in the survey were rated as transformational or informational based on the descriptions and qualifications described in the background section. It is hard to find purely informational advertisements among ads used by large or well-known companies. However, these ratings were confirmed and agreed upon by a professional and peer. Because transformational ads are most prevalent and easily created in videos, the ads used were all video ads.

According to Reference [3], transformational advertisements, or dramas, at their extreme are characterized by a plot, character, and absence of narrator. An informational, or argument, ad, at the

other extreme, is none of those things. A plot is any form of problem that arises and is addressed in a story. A plot is the first stage away from a purely informational ad. However, there are often mixed forms. There are narrated dramas, also called stories, that have narration but also plot and character. There are dramatized arguments, referred to as demonstrations, that have plot and narration but no character [3]. Using these guidelines, the most informational of the ads is the video for the Kindle Fire. The most transformational is for Extra Gum, that has no narration, characters, and a plot, as the young girl goes through the trials and excitements of life. The advertisement for the HTC one phone is also mostly transformational. There is a plot, the

problem of what HTC abbreviates, a character, and no narration. However, because it is mostly Robert Downing Junior speaking, it is almost like a narration. Lastly, the advertisement for the Oral B toothbrush is considered a story. There is a plot, the problem of finding the best toothbrush, a character, the woman looking for a brush, and a narrator. Thus, in following the guidelines described, the scale for the advertisements from most informational to least informational is the Kindle Fire ad, the Oral B ad, the HTC one ad, and lastly, the Extra ad.

Testing advertisement effectiveness is difficult. The background section of this paper describes how advertisement effectiveness is largely related to change in views in the brand and advertisement recall. Thus, these two things were tested as best as possible so that questions can be reliably answered by respondents. One question asks how the ad video changes how people view the specific brand and targets the first factor--changing attitudes or views towards a brand. To test recall, there is a follow-up survey two weeks after the first survey. This survey asks respondents to choose between the brand advertised in the survey and a well-known competitor of the product. The follow-up strives to simulate the moment of brand-choice when purchasing a product. Their responses are compared to the responses they have in the beginning of the first survey, before they have seen the advertisements. Also, the follow-up survey is to help truly analyze effective advertising not only in how it changes brand attitudes but potential behavior, since as discussed in background, they are slightly different. Again, the danger of transformational ads are that they create a weak brand to ad association, promoting ad-directed encoding. Thus, to best recreate the moment of purchase environment, images of the products are included in the follow-up survey to create the association cues that improve ad recall.

Advertisements are complex, as many factors come into play when determining their effectiveness. Thus, precautions must be taken to mitigate other variables that can come to play in assessing ad effectiveness. Because the kind of product being sold can affect the way people receive advertisements, the explanatory variables of level of ad transformation and consumer age have to be isolated as much as possible. Thus, one transformational advertisement was for an electronic, the HTC one phone, and one informational advertisement was also for an electronic, the Kindle Fire. Similarly, one informational advertisement was for something related mouth hygiene, Oral B toothbrushes, and another transformational advertisement is for Extra gum.

Next, if the respondent has seen the video in the ad before, they are more exposed to the advertisements than others. This could increase their change in recall of the ad in taking the follow-up survey. It could also cause them to be more inclined to indicate no change in their view of the brand, which is a question used to test for brand effectiveness. Thus, this is taken into account by asking the person if they have seen the ad.

To further gather data on ad effectiveness in relation to transformational or informational advertisements, three questions are dedicated to asking questions on the consumer's self-perceived preference towards transformational versus informational advertising. These questions are there to compare how consumers perceive their own preferences and the actual results received from change in brand product preference and view of a brand.

#### IV. EXPERIMENTAL RESULTS

##### *A. Summary of Results*

In Tables I and II below, a positive value for "change in appeal" means the brand advertised for the product increased. The higher the "change in brand perception", the more positive appeal towards the brand, where 3 is no change in appeal. The higher the value for the "learned from ad", the more the person learned about the product from the ad.

Table I: Products' Ad Responses Older Ages

Product in Ad	Average Change in Appeal	Average Change in Appeal (Abs. Value)	Average Change in Brand Perception	Average Learned from Ad
Tablet	5.733	24	3.55	2.775
Toothbrush	0	25.867	3.725	2.45
Phone	-2.633	21.433	2.846	1.615
Gum	11.067	30.667	3.692	1.872

Average Age: 49, n = 40 (all ages ≥ 35)

Table II: Products' Ad Responses Younger Ages

Product in Ad	Average Change in Appeal	Average Change in Appeal (Abs. Value)	Average Change in Brand Support	Average Learned from Ad
Tablet	2.275	13.425	3.632	2.947
Toothbrush	0.2	20.9	3.789	2.386
Phone	-1.825	14.375	3.263	1.526
Gum	-1.15	18.75	3.965	1.614

Average Age: 22, n = 57 (all ages < 35)

Table III: Advertising Responses by Age Group

Age Group	Support Brands with Creative Ads	Pay attention to Entertaining Ads	Annoyed by Product Irrelevant Ads
Older (avg age = 49)	2.46	1.38	3.1
Younger (avg age = 22)	2.77	1.61	2.78

Older Group n = 50, Younger Group n = 87

In Table III, the higher the values for “creative brands” and “annoyed by ads”, the more motivated the age group is to support creative brands and the more annoyed the age group is by ads that advertise in a way irrelevant to the actual product.

In “Relevant v. Entertaining,” relevant correlates with the value 1 and entertaining, 2.

### B. Analysis of Results

Given these averages in Table I and Table II, the most successful ad for the older age group, with ages older than 35, is the ad for gum, which is also rated as most transformational. The p value is found for the hypothesis that the change in appeal of Extra gum for older groups is larger than the change in appeal for younger groups, or that  $11.067 > -1.150$ . This is a 0.079 p value.

While the p value is not very significant, these calculations for the difference between commercial effectiveness compares responses of all ages. The

difference is more abrupt with when looking at two groups of more extreme ages. Looking at only the ages younger than 29 and ages older than 45, the younger age groups' average preference for Extra gum after watching the commercial is -4.091 while the older age groups' average preference for Extra gum after watching the commercial is 15.722. This has a significant p value of 0.05.

Next, the most successful ad for the younger age group is for the tablets, which is also rated the most informational ad. However, interestingly, the change in appeal for Kindle tablets, while the largest change for younger age groups, is smaller than the change in appeal values for the older age groups. It is also smaller than the change in appeal for Kindle Fire tablets for the control group. Thus, it appears to be rather insignificant. In fact, all the "changes in appeal" values for products advertised are larger or more extreme for older age groups. This is hypothesis is significant at an average p value across the 4 products of 0.03.

From Table III, the younger age group appears to be less annoyed by ads that advertise in a way that is irrelevant to the brand itself, more likely to support creative brands, and will pay attention to ads that are entertaining rather than relevant. Where the null hypothesis is that the  $\mu$  values for these categories between the older and younger ages are different, the p value for each is 0.019, 0.017, and 0.020 respectively.

These insights found from Table III are in line with the responses the different age groups had towards the ads immediately after viewership. The ad that increased positive brand perception the most for the younger age groups was the ad for Extra gum, which is rated the most transformational ad. At the same time, the younger respondents also recognized that the ad for Extra gum did not teach them much about the product being sold, as it has a higher "Learned from Ad" value at 3.386. Meanwhile, for the older age groups, the ad that increased positive brand perception the most was the ad for Oral B toothbrushes, rated an informational ad. Viewers also recognize that they learned about the product being sold, with a lower "Learned from Ad" value at 2.550. The p value for the hypothesis that 3.386 is greater than 2.550 is extremely significant at  $< 0.001$ .

Overall, fig. 1 shows the average change in purchase appeal compared to how much consumers claim to have learned from an ad. While for younger ages, the change in appeal goes up as information

learned from the ad increases, this is not the same effect for older ages

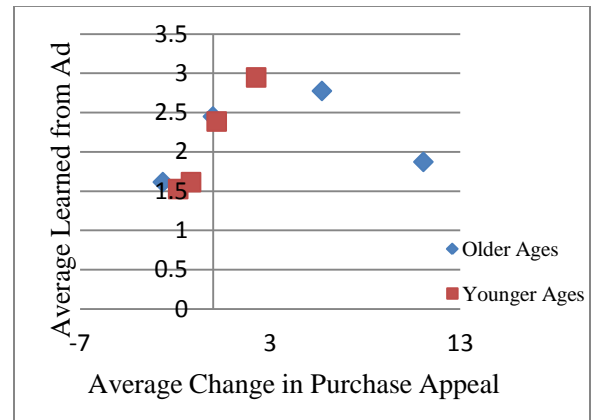


Fig. 1: Informational Levels' Effects on Change in Purchase Appeal

### C. Other Correlation Analysis

Because other data was collected, other correlations were analyzed for additional insights. For instance, the correlation between gender and "change in appeal" towards products promoted with transformational versus informational ads was examined. A summary table can be seen below. However, it is interesting to note that the statistical significance of the gender correlation with transformational or informational ads is smaller than the significance of the correlation of the two types of ads with age. (See the appendix for a summary of data.)

Another factor examined was whether the level effectiveness of ads changed when the consumer had seen the ad before. The products' absolute value of appeal for purchase increased when the commercial was viewed before. Considering that opinion formulation occurs unconsciously [4] and takes time, it makes sense that changes in purchase appeal increased more when commercials were viewed once before. Interestingly, the ads that were rated informational had more statistically significant changes in purchase appeal. With the null hypothesis being that there is no difference between change in appeal of those who have seen the commercial before or had not, the ad for Oral B toothbrushes is statistically significant at a p value of 0.02, but the ad for Kindle Fire tablets is 0.12. (See the appendix for graph and summary of data.)

## V. DISCUSSION AND CONCLUSION

The data suggests that younger age groups view themselves as more supportive of creative and entertaining advertising than older age groups do. They also are less annoyed at brands that advertise in a way irrelevant to the product being sold. Thus, it would seem that transformational ads would have a larger influence on younger age groups, instead of what was predicted. This is reflected in viewers' immediate responses to ads. Younger groups were most likely to support transformational ads, while recognizing they had not learned as much about the product actually being sold. Older age groups showed less support for transformational ads that did not teach them as much about the product itself. Interestingly, however, the ad that is actually most effective in changing buying decisions for older age groups is the Extra gum ad, or the most transformational ad. The significance of this statistical hypothesis increases as older age groups are compared with even younger age groups. Lastly, older age groups in general showed a larger change in views in products after seeing ads than younger age groups did.

The data supports previous background research. As discussed earlier, older people see time as limited and thus use emotional cognitive processing more. This is also due to better understanding of their emotions and more nodes of information stored in memory, making emotional cognitive processing easier than purely informational. Also, people rate experiential products as more valuable than material products. Given this research, it was predicted that older age groups would be more susceptible to transformational ads.

Second, from the results, it seems that viewers were not aware of their own cognitive processing. While younger age groups believe they themselves are more inclined towards transformational advertising, they show change in buying decision that favors products informationally advertised. While this was inexplicitly foreseen, it is true that humans are generally not aware of their own cognitive processing.

Next, another unforeseen result was that older age groups have larger changes to their buying decisions after seeing the ads than younger age groups do. Based on the background research done, two factors may be at play here. For one, older people may be better at making decisions on their opinions, as they have more experience doing so and have, as researched, a better grasp of understanding themselves.

Next, the data supports the fact that older age groups may be more convinced by transformational advertising. However, this could also be due to other causes. As discussed in the background section, transformational ads are effective in that all people are less guarded and less aware they are watching an ad. When people are less aware of the source of persuasion, they are more easily convinced. Thus, if older people have more nodes of memory and thus are more forgetful, they are more likely to forget the source of persuasion in their changing appeal towards certain brands and be more easily convinced. This phenomenon is called the sleeper effect in persuasion. While persuasion levels usually dissipate over time, when the source of original persuasion is perceived to be unreliable, persuasion levels increase over time. The most generally accepted hypothesis for this phenomenon is that subjects disassociate the distrusted source from their memory of the message itself [1].

Lastly, the rules for categorization of transformational versus informational ads created by past scholars did not show a consistent correlation with age groups. More specifically, from the previous categories researched, the ad for tablets is the most informational, then toothbrush, phone, and lastly gum. However, from the results, effectiveness of ads for older age groups, for instance, does not follow an increasing level of effectiveness with increasing level of transformational advertising. Instead, it seems that for both age groups, the advertisement for the HTC phone is most ineffective. This can be explained with the fact that the HTC phone commercial is entertaining towards a specific targeted, younger audience. It is different from the Extra gum commercial in that it is rated a transformational ad based on its humorous entertaining content rather than heart-warming entertaining content. Thus, a different kind of categorization could be helpful in future research.

While the data is not against the hypothesis, it is not very strong support. For research methods improvement, the multiple choices in the survey could have had a larger range. Instead of just from 1 to 5, survey respondents should have been able to choose from choices 1 to 8, for instance. That way, differences in opinions could be amplified. Also, isolating the two independent factors of transformational and informational advertising could be improved upon. Instead of showing videos of real ads in the future, sentences or posters promoting the same product in a transformational or informational way is more readily controlled. Lastly, the follow-up survey should have been conducted earlier than two

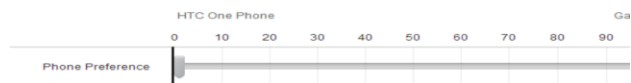
weeks later. Because most respondents were slow to respond and persuasion levels decrease as time goes on, sending the follow-up survey earlier would have been ideal.

For future research, a larger sample size should be pursued. Currently, a small sample size can be prone to easy distortion of other contributing factors of information processing like education and environmental factors. Lastly, with a larger sample size, a prediction model for what makes an effective ad for different age groups or genders is a potent tool that businesses could use to better understand the mysteries of good advertising.

## APPENDIX

### Survey Sent Out (Each multiple choice response correlates with a value.):

For the following four questions, choose the brand you are more likely to buy for phones, tablets, chewing gum, and toothbrushes:



### Questions Asked after each Commercial Viewership

Have you seen this commercial before?

- 1) Yes
- 2) No

How has your perception of this brand changed? I view the brand:

- 1) More Negatively
- 2) Slightly More Negatively
- 3) No Change
- 4) Slight More Positively
- 5) More Positively

After seeing this commercial, you learned more about the product they are trying to sell.

- 1) I strongly agree
- 2) I agree
- 3) I neither disagree nor agree
- 4) I disagree
- 5) I strongly disagree

I am more motivated to support a brand that advertises creatively with videos that are entertaining.

- 1) I strongly agree
- 2) I agree
- 3) I neither disagree nor agree
- 4) I disagree
- 5) I strongly disagree

I will pay attention to an ad when it is:

- 1) Relevant to my needs
- 2) Entertaining
- 3) Other:

I am annoyed by brands that advertise in a way that is mostly irrelevant to the actual product.

- 1) I strongly agree
- 2) I agree
- 3) I neither disagree nor agree



- 4) I disagree
- 5) I strongly disagree

Age: \_\_\_\_\_

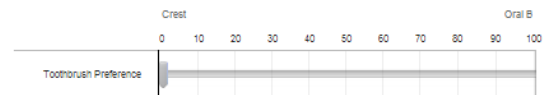
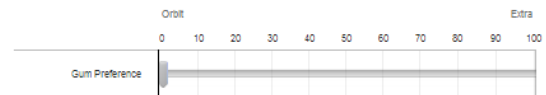
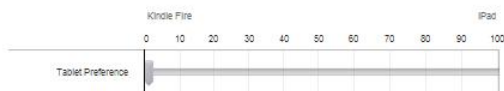
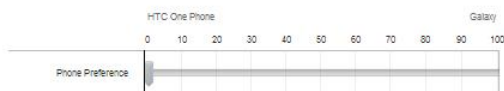
Gender:        Male     Female

Email for follow-up survey: \_\_\_\_\_

**Highest Education Finished or in Process:**

- 1) High School Diploma
- 2) Bachelors
- 3) Graduate: \_\_\_\_\_
- 4) Other: \_\_\_\_\_

Sample Follow-Up Survey:



### Calculations and Formulas:

For all the results analysis, the following null hypothesis and formulas were used.

$H_0$  : There is no difference in the means between the older age group and younger age group.

$$Z_{12} = (\bar{x}_1 - \bar{x}_2) / (\sqrt{v_1 + v_2})$$

$T_{df}$  (1 sided, t distribution)

$$\text{where } df = (v_1 + v_2)^2 / (v_1^2 / (n_1 - 1) + v_2^2 / (n_2 - 1))$$

$v_i = s_i^2 / n_i$  where s is for standard deviation, and n is for sample size.

Note: A two way ANOVA table was also created in Excel, but the functionality in Excel was not specific enough to use. Null hypothesis testing was done using code written in Python instead for more controllability.

Table IV Change in Buying Appeal Grouped by Gender

Product in Ad	Change Appeal Males	Change Appeal Females
Tablet	-0.409	5.667
Toothbrush	2.545	-1
Phone	-6.363	-0.125
Gum	4.772	3.771

males n=22, average age =36; females n=48, average age =33

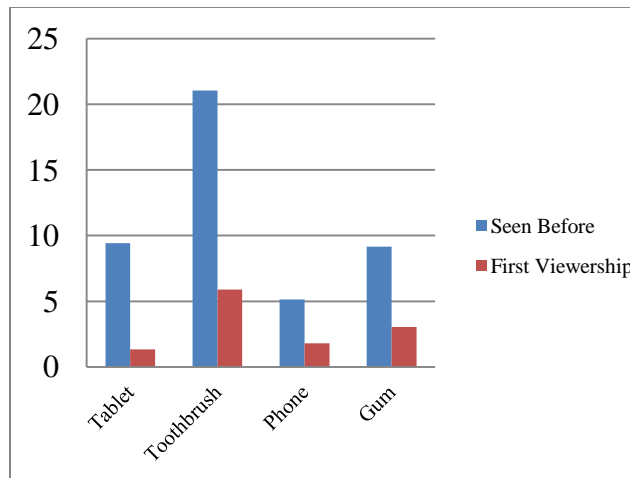


Fig. 2: Absolute value of change in buying appeal comparison of respondents who have seen ad before and first time viewers

Table V: Comparison of First-Time Viewers and Others Data

Product	Seen Before	First Viewership
Tablet	9.428571	1.326531
Toothbrush	21.06667	5.890909
Phone	5.125	1.790323
Gum	9.166667	3.034483

\*Values above are the absolute value of change in buying appeal

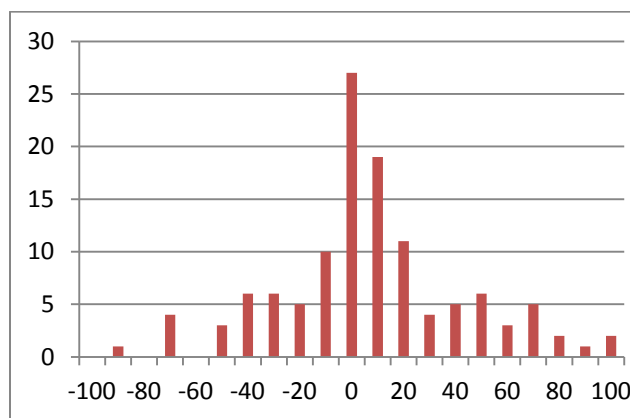


Fig. 3: Change in Buying Appeal for All Products, Older Groups

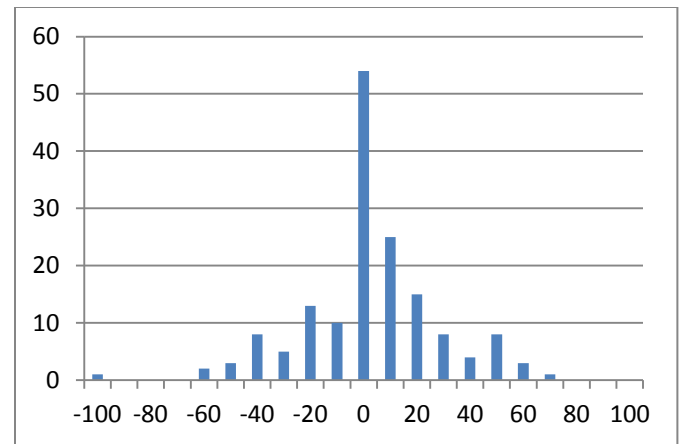


Fig. 4: Change in Buying Appeal for All Products, Younger Groups

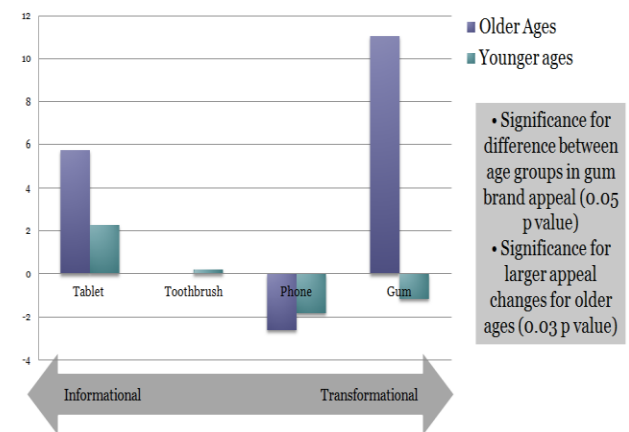


Fig. 5: Change in Appeal Towards Products

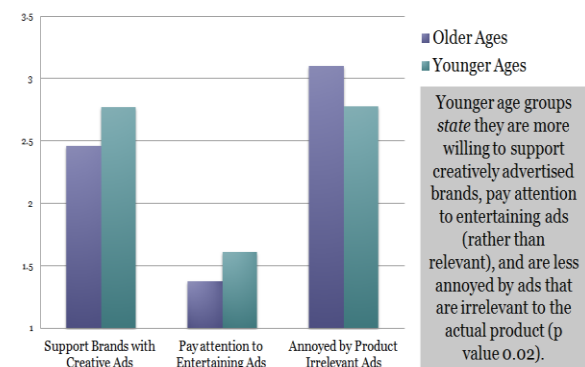


Fig. 6: Self-Perceived Ad Preference

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