

Applying Natural Language Processing (NLP) to Investigate the Linguistic Patterns in TV Advertisements Targeting Children and Their Influence on Family Purchasing

Dr. Sanjay Payasi

Professor, Anand Institute of Management Bhopal (M.P.) India

Abstract: *TV advertisements targeting children are strategically crafted to capture their attention and influence their buying behavior, which in turn impacts family purchasing decisions. This study employs Natural Language Processing (NLP) techniques to analyze the linguistic patterns in TV ads targeting children, exploring how specific language features influence children's responses and family purchasing behavior. A sample of 300 TV advertisements aired during children's programming was analyzed using NLP techniques, including sentiment analysis, keyword extraction, and semantic analysis. Additionally, a survey of 400 parents with children aged 8-14 years was conducted to assess the influence of these ads on family purchasing decisions. Statistical tools such as logistic regression and correlation analysis were used to examine the relationship between ad language features and purchasing behavior. The findings reveal that ads using persuasive language, emotional appeals, and repetitive phrases significantly impact children's preferences, leading to increased purchase requests and influencing family decisions. The study highlights the power of language in shaping consumer behavior among children and suggests that advertisers should be mindful of the ethical implications of using persuasive language targeting young audiences. Future research should explore the integration of multimodal data, including audio and visual elements, to further understand the impact of TV ads on children.*

Keywords: Natural Language Processing, TV Advertising, Linguistic Patterns, Children, Family Purchasing, Sentiment Analysis

I. INTRODUCTION

Television advertisements targeting children are a key marketing strategy used by companies to influence young consumers and, indirectly, their families. These advertisements often use specific linguistic patterns designed to appeal to children, including simple language, emotional appeals, and engaging narratives. The language used in ads plays a critical role in shaping children's perceptions, preferences, and buying behavior, which in turn impacts family purchasing decisions. This study applies Natural Language Processing (NLP) to analyze the linguistic patterns in TV ads targeting children, exploring how these patterns influence children's responses and family purchasing behavior.

1.1. The Role of Linguistic Patterns in TV Advertising

Language is a powerful tool in TV advertising, especially when targeting children. Advertisers carefully choose words, phrases, and narratives that resonate with young audiences, making products appear desirable and fun. Linguistic patterns such as repetition, catchy phrases, and direct appeals to emotions are common tactics used to capture attention and drive engagement. Understanding the impact of these linguistic features on children's buying behavior is essential for advertisers seeking to optimize their strategies and for policymakers aiming to regulate the ethical aspects of advertising to children.



1.2. Natural Language Processing in Advertising Research

Natural Language Processing (NLP) offers advanced analytical capabilities to study the language used in advertising. NLP techniques such as sentiment analysis, keyword extraction, and semantic analysis enable researchers to quantify and interpret the linguistic features of ads. By applying NLP to analyze TV ads targeting children, this study provides insights into how language influences children's responses and family purchasing decisions.

1.3. Problem Statement

Traditional methods of analyzing TV advertisements often focus on visual and auditory elements, with less emphasis on the linguistic components. This study addresses this gap by employing NLP to investigate the linguistic patterns in TV ads targeting children, examining how specific language features impact children's buying behavior and influence family purchasing decisions.

II. LITERATURE REVIEW

McNeal, J.U. (1999): Explored the influence of advertising language on children's consumer behavior, highlighting the impact of simple and repetitive language on children's brand preferences.

Ward, S., & Wackman, D.B. (1972): Studied the role of persuasive language in TV ads, finding that ads targeting children often use direct appeals that significantly influence purchasing behavior.

Buijzen, M., & Valkenburg, P.M. (2003): Analyzed the effects of emotional language in advertisements on children, demonstrating that ads with emotional appeals are more likely to be remembered and influence buying decisions.

Livingstone, S., & Helsper, E.J. (2006): Investigated the linguistic strategies used in children's advertising, revealing that language plays a crucial role in shaping children's attitudes towards products.

Calvert, S.L. (2008): Examined the impact of linguistic features in advertising on children's engagement, noting that catchy phrases and repetitive language enhance recall and persuasion.

Moore, E.S., & Rideout, V.J. (2007): Studied the use of persuasive language in food ads targeting children, finding that specific word choices significantly impact children's product preferences.

Nairn, A., & Fine, C. (2008): Discussed the ethical implications of using manipulative language in ads targeted at children, emphasizing the need for responsible advertising practices.

Kotler, P., & Armstrong, G. (2012): Reviewed consumer behavior theories, highlighting the influence of language on advertising effectiveness, particularly among young audiences.

Martin, C.A., & Bush, A.J. (2000): Analyzed the role of language in shaping children's buying behavior, showing that linguistic patterns such as rhymes and slogans effectively capture attention.

Schor, J.B. (2004): Explored the commercialization of childhood, emphasizing the impact of language on children's consumer habits and the broader implications for family purchasing.

III. THEORETICAL CONCEPT AND RESEARCH FRAMEWORK

The study is grounded in the Elaboration Likelihood Model (ELM) of Persuasion (Petty & Cacioppo, 1986), which explains how individuals process persuasive messages through central and peripheral routes. In the context of advertising targeting children, the language used in ads often engages the peripheral route, where catchy phrases, emotional appeals, and repetition create an automatic response that does not require deep cognitive processing. This study applies the ELM to analyze how linguistic patterns in TV ads influence children's responses and family purchasing behavior, using NLP techniques to quantify these language features.

3.1. Significance of Study

This study provides valuable insights into the role of language in TV advertising targeting children, highlighting how specific linguistic patterns influence consumer behavior. By applying NLP to analyze the language of ads, the study offers a data-driven approach to understanding how persuasive language impacts children's preferences and family purchasing decisions, contributing to the literature on advertising effectiveness and consumer behavior.



IV. RESEARCH METHODOLOGY

4.1. Study Design:

The study employs a mixed-method approach, combining NLP analysis of TV ads with quantitative survey data to assess the impact of linguistic patterns on children's responses and family purchasing decisions.

4.2. Sampling:

The sample consisted of 300 TV advertisements aired during children's programming and a survey of 400 parents with children aged 8-14 years from urban and rural areas in India, selected through stratified random sampling.

4.3. Data Collection and Research Instrument Design:

NLP techniques were applied to analyze the linguistic content of TV ads, including sentiment analysis, keyword extraction, and semantic analysis. The survey captured data on parents' perceptions of the influence of TV ads on their children and family purchasing decisions.

4.4. Data Sources:

Primary data were obtained from TV advertisements and survey responses, while secondary data included literature on advertising language, consumer behavior, and NLP techniques.

4.5. Geographical Area:

The study was conducted in urban and rural areas across multiple regions of India, ensuring representation from diverse family structures and socio-economic backgrounds.

4.6. Sample Size:

The study analyzed 300 TV ads and surveyed 400 parents, providing a robust dataset for investigating the influence of linguistic patterns on children's buying behavior and family purchasing.

4.7. Data Analysis:

NLP tools were used to extract linguistic features from TV ads, including sentiment scores, keyword frequency, and semantic similarity. Logistic regression and correlation analysis were conducted to assess the relationship between ad language features and family purchasing behavior.

V. ANALYSIS OF DATA: TOOLS AND TECHNIQUES

5.1. NLP Techniques: Sentiment Analysis and Keyword Extraction

Table 1: Sentiment Analysis of TV Advertisements

Sentiment	Frequency	Percentage
Positive	160	53.3%
Negative	70	23.3%
Neutral	70	23.3%

Explanation: The sentiment analysis of TV ads targeting children shows that the majority of ads (53.3%) are framed positively, using uplifting and persuasive language to create a favorable impression. Negative and neutral sentiments each accounted for 23.3%, indicating a balanced approach in ad framing.

5.2. Keyword Extraction and Frequency Analysis

Table 2: Most Frequently Used Keywords in TV Ads

Keyword	Frequency	Context
Fun	85	Associated with play and enjoyment.
Cool	75	Used to create a trendy appeal.
Free	65	Linked to promotions or giveaways.
Adventure	50	Describing experiences with products.
Amazing	45	Used to amplify product appeal.



Explanation: Keywords such as “fun,” “cool,” and “free” are frequently used in TV ads targeting children, reflecting a strategy to enhance appeal and drive engagement. These keywords are often associated with positive contexts that encourage children to desire the advertised products.

5.3. Semantic Analysis: Emotional and Persuasive Language

Semantic analysis identified the prevalence of emotional and persuasive language in the ads, such as direct calls to action (e.g., "Get yours today!") and appeals to emotions (e.g., "Make every day an adventure!"). These linguistic features play a critical role in capturing children's attention and influencing their requests to parents.

5.4. Correlation Analysis: Linguistic Features and Purchase Requests

Table 3: Correlation Between Linguistic Features and Purchase Requests

Variables	Persuasive Language	Purchase Requests
Persuasive Language	1.000	
Purchase Requests	0.62**	1.000

Explanation: The correlation analysis shows a significant positive relationship (0.62) between the use of persuasive language in ads and children’s purchase requests, indicating that language plays a crucial role in driving consumer behavior among young audiences.

5.5. Regression Analysis: Predictors of Family Purchasing Decisions

Table 4: Regression Coefficients

Variable	B	Beta	t	Sig.
(Constant)	1.650		3.950	.000
Positive Sentiment	0.420	0.580	7.405	.000
Keyword Frequency	0.350	0.520	6.505	.001
Emotional Appeals	0.300	0.480	5.805	.001

Explanation: The regression analysis indicates that positive sentiment (Beta = 0.580), keyword frequency (Beta = 0.520), and emotional appeals (Beta = 0.480) are significant predictors of family purchasing decisions, highlighting the influence of linguistic patterns on consumer behavior.

5.6. Thematic Analysis of Survey Responses

Table 5: Key Themes from Parent Survey

Theme	Description	Representative Quotes
Influence of Repetition	Children are influenced by repetitive language in ads.	"My child keeps repeating the phrases from the ad."
Appeal of Fun Language	Ads that emphasize fun are more persuasive to children.	"Anything that looks fun, my kids want it."
Role of Emotional Words	Emotional language sways children’s requests.	"When they say it’s amazing, my kids believe it."

Explanation: The thematic analysis reveals that children are particularly influenced by ads that use repetitive language, emphasize fun, and employ emotional words. These linguistic strategies enhance the effectiveness of ads in driving children’s purchase requests, which often lead to family buying decisions.

5.7. Results

The combined analysis of NLP techniques and survey data demonstrates that linguistic patterns in TV advertisements significantly influence children’s responses and family purchasing decisions. Ads that use positive sentiment, persuasive language, and emotional appeals are particularly effective in shaping children’s preferences and driving



purchase requests. These findings underscore the power of language in advertising and suggest that advertisers should be mindful of the ethical implications of using persuasive language targeting children.

5.8. Hypotheses Status

Hypotheses	Statistical Evidence	Hypotheses Status
H01: Linguistic patterns in TV ads do not significantly influence children's purchase requests and family purchasing decisions.	Regression analysis $p < 0.01$.	Fail to accept
H02: Positive and persuasive language in TV ads does not affect children's responses.	Correlation analysis $p < 0.01$.	Fail to accept

VI. CONCLUSION

The study concludes that linguistic patterns in TV advertisements play a significant role in influencing children's responses and family purchasing decisions. Positive sentiments, persuasive language, and emotional appeals are key linguistic features that drive engagement, enhance product appeal, and encourage children to request advertised products. By applying NLP techniques, this study provides a detailed analysis of the language used in TV ads targeting children, offering valuable insights for advertisers and policymakers. The findings highlight the need for ethical advertising practices that consider the impact of language on young audiences and suggest that integrating multimodal data could further enhance the understanding of advertising effectiveness.

Limitations and Suggestions for Future Research:

This study focuses on TV ads targeting children aged 8-14 years in India, which may limit the generalizability of the findings to other age groups or cultural contexts. Future research should explore the integration of multimodal data, including audio and visual elements, to provide a comprehensive analysis of advertising effectiveness. Additionally, studies could investigate the long-term impact of exposure to persuasive language on children's consumer behavior and family purchasing decisions.

REFERENCES

- [1]. Buijzen, M., & Valkenburg, P.M. (2003). The effects of television advertising on materialism, parent-child conflict, and unhappiness: A review of research. *Journal of Advertising*, 32(2), 23-34.
- [2]. Calvert, S.L. (2008). Children as consumers: Advertising and marketing. *The Future of Children*, 18(1), 205-234.
- [3]. Kotler, P., & Armstrong, G. (2012). *Principles of Marketing*. Pearson Education.
- [4]. Livingstone, S., & Helsper, E.J. (2006). Does advertising literacy mediate the effects of advertising on children? A critical examination of two linked literatures. *Journal of Communication*, 56(3), 560-584.
- [5]. Martin, C.A., & Bush, A.J. (2000). Do role models influence teenagers' purchase intentions and behavior? *Journal of Consumer Marketing*, 17(5), 441-453.
- [6]. McNeal, J.U. (1999). *The Kids Market: Myths and Realities*. Paramount Market Publishing.
- [7]. Moore, E.S., & Rideout, V.J. (2007). The online marketing of food to children: Is it just fun and games? *Journal of Public Policy & Marketing*, 26(2), 202-220.
- [8]. Nairn, A., & Fine, C. (2008). Who's messing with my mind? The implications of dual-process models for the ethics of advertising to children. *International Journal of Advertising*, 27(3), 447-470.
- [9]. Petty, R.E., & Cacioppo, J.T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*, 19, 123-205.
- [10]. Schor, J.B. (2004). *Born to Buy: The Commercialized Child and the New Consumer Culture*. Scribner.

