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The Effect of Product Placement in Movies on Brand Recall: A Meta-Analysis

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Abstract

Product Placement is a concept in marketing, where brands are incorporated into movies to avoid breaks that are usual in traditional advertisements. This is aimed at making a brand more visible and also to enhance its ability to reach the target audience effectively. Evaluating the effectiveness of product placement in improving brand recall in movies is the primary goal of the research. A comprehensive meta-analysis was carried out using SPSS version 29 and Jamovi to ascertain this impact. The findings obtained through the Random-Effect Model analysis yielded the outcome of the heterogeneity test. In this study, the data from thirteen relevant studies reported a positive effect of Product Placement on Brand recall. The effect size was determined using Cohen's d. Consequently, the results revealed that Product Placement significantly boosts Brand recall suggesting it is a strong marketing approach. The results underline the power of Product Placement to influence consumer behaviour, thus indicating the efficacy of incorporating brands within the content of movies. Therefore, Product Placement is a more interactive and non-intrusive way to reach audiences, thus proving effective as a strategic marketing technique. These findings further confirm the efficacy of Product Placement in creating higher brand recall, thus validating this approach as useful in Movie marketing.

Keywords: Brand Recall, Egger's Regression Meta-Analysis, Movie Marketing, Product Placement, Random-Effect Model.

Introduction

The expansion of the movie industry has created fresh avenues for marketers to advertise their products through the practice of product placement (1). This means that brands can be seamlessly integrated into a movie, providing an additional revenue stream for movie productions and enhancing the brand's image. By incorporating products into movies, marketers can connect with the audience subconsciously, influencing customer behaviour and turning the process of watching a movie into an immersive brand experience. This product placement strategy can be highly effective for increasing brand exposure, especially when targeting hard-to-reach audiences such as teenagers and young adults (2, 3). Branded products placed in movies are more adaptable than commercials and can influence potential purchase behaviour by providing a sense of realism to the movie experience (4, 5). This in turn creates a stronger effect on the selection of brands of established products in comparison with independent advertisements (6). Product placement and brand attitudes can be influenced by movies directly or indirectly (7). Favourable attitudes are more commonly observed when watching movies with friends as opposed to watching with strangers, and when product placement is integrated into the story structure (8, 9). Watching a movie on a big screen has the strongest impact towards customer loyalty, intention to purchase, and brand memory (10–13). As a result, products that are prominently displayed in audio-visual form are more likely to be recognized (14–16). However, having multiple product placements at the same time could reduce recall (10). Nonetheless, the effectiveness of product placement depends on both objective and subjective characteristics, which can influence consumer evaluations and memory (17). Although a lot of research has been done on how product placement affects customer behaviour, there is still a need for a thorough review of existing research to gain a better understanding specifically in terms of brand recall. This study uses a meta-analytical approach to thoroughly analyse and summarise the body of research on product placement,

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notably in movies, and its effect on brand recall to fill this particular information gap. To achieve this objective, the study identified thirteen relevant studies to examine Product Placement's effect on Brand recall in movies. For conducting Meta-analysis, the study utilized Jamovi and SPSS version 29. A previous meta-analysis reported a significant impact of the effect of brand placement on the memory of brand placement in general (18). This study will examine Product Placement's effect on brand recall specifically in the context of movies. This meta-analysis aims to give a thorough evaluation of the overall effect size of product placement on brand recall by combining data from a wide array of research. Considering the above, the following hypothesis has been formed. Figure 1 shows the conceptual model for the study. Hypothesis (H_1): Product Placement has a positive and significant effect on Brand Recall.

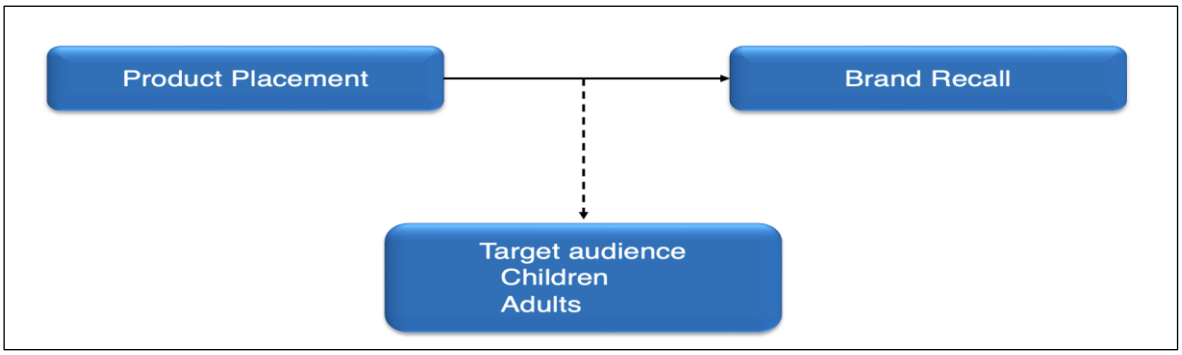

Figure 1: Conceptual Framework Showing the Effect of Product Placement on Brand Recall Moderated by the Target Audience – Children and Adults

Materials and Methodology

The study utilized Meta-analysis to evaluate the effect of placing products in movies on the ability of viewers to recall the brand. A meta-analysis is a method that uses mathematical techniques to combine and summarize the findings of a particular outcome from multiple related empirical studies. When multiple small studies yield "positive" results that often do not reach "statistical significance," combining the findings through meta-analysis allows for a greater sample size. This simplifies the process of detecting statistical significance (19).

Inclusion Criteria

The study conducted a comprehensive search through academic databases, including ProQuest, JSTOR, Emerald, Elsevier, and Taylor and Francis, to gather relevant articles focused on product placement. The search included keywords such as "product placement," "brand recall," "brand awareness," and "brand recognition." Additionally, master's dissertations and student projects were also considered to enrich the dataset. Including these sources helped capture a broader range of insights, as they might offer unique perspectives not covered in peer-reviewed journals. The primary focus remained on studies written in English that specifically examined how product placements in movies influence brand recall among participants. The search criteria were broad, allowing for an extensive exploration of the available literature on this topic. Emphasis was placed on identifying studies that explored the direct relationship between movie-based product placements and participants' ability to recall the featured brands.

Exclusion Criteria

An essential criterion for selecting studies was the inclusion of both a control group and an experimental (or treatment) group. Studies that focused only on one group of participants, without a comparative control condition, were excluded. This ensured that the selected studies provided a clear comparison between participants exposed to product placements and those who were not. By including both control and experimental groups, the analysis could more effectively isolate the impact of product placement on brand recall, offering a comprehensive basis for drawing conclusions.

Study Scope

There were no restrictions on publication year, allowing for the inclusion of research from a wide range of time periods. This broad approach ensured that both historical and contemporary studies on product placement and brand recall in movies were considered. Additionally, there were no limitations placed on the sample size, with studies of varying participant numbers being included in the analysis. Because research on various scales provided insightful information about the connection between product placement and brand memory, this made it feasible to gain a more thorough grasp of the subject.

Data Analysis

Following the identification of pertinent studies, the necessary statistical data were retrieved, including the mean, sample size, and standard deviation for the control and experimental groups. After that, the data were analysed using SPSS (version 29), and the effect size (Cohen's d) was determined. A quantitative assessment of the impact of the intervention was made by this measure of effect size (Cohen's d), which offered a consistent method to examine the strength of the association between brand recall and product placement in movies across the experiments. To aid in the computation of effect sizes, a table was made that listed all of the studies that were part of the meta-analysis. The authors' names, the study years, and the associated statistical information (mean, standard deviation, and sample size of the control and experimental groups) are provided in Table 1.

Table 1: Attributes of the Studies Included in the Meta-Analysis

First author, Publication year	Mc	SDc	Nc	Me	SDe	Ne
Andriasova, 2006 (20)	26.81	8.340	21	19	7.934	20
Gürses & Okan, 2014 (21)	48.09	21.96	149	2.25	2.75	149
Babin, 1996 (22)	19.478	5.688	108	19.439	5.487	108
Redondo *et al.,* 2018 (23)	0.63	0.48	388	0.28	0.45	370
Naderer *et al.,* 2018 (24)	5.385	1.53	137	3.41	1.06	89
Beaufort, 2019 (25)	10.267	2.377	400	9.333	3.293	400
Van der Weele, 2009 (26)	1.320	1.510	43	0.43	0.76	43
Deineika, 2018(27)	5.200	1.42	69	4.72	1.23	69
De Gregorio, 2005 (27)	2.76	1.47	172	0.086	0.318	172
Matthes *et al.,* 2012 (28)	0.4325	1.274	135	-0.178	1.081	86
Gibson *et al.,* 2014 (29)	64.708	16.119	25	44.881	8.919	25
Marchand *et al.,* 2015 (30)	2.86	1.71	41	4.34	1.54	81
Spielvogel *et al.,* 2020 (31)	0.315	0.220	37	0.22	0.14	31

Mc – Mean of Control group; SDc – Standard deviation of Control group; Nc – Sample size of Control group; Me - Mean of Experimental group; SDe – Standard deviation of Experimental group; Ne – Sample size of Experimental group.

Results

Forest Plot

A forest plot was utilised to analyse the data. A forest plot is a type of graphic display that shows the effect size down the x-axis, the 95% confidence interval and the individual studies on the y-axis. The outcome of the meta-analysis is depicted as a Forest Plot, with a red diamond indicating the combined effect size (Figure 2). This type of plot presents the effect estimates and confidence intervals of individual studies (32). Forest plots provide a summary of quantitative data in a systematic review (33). The forest plot examines the effect size using the measure of Cohen's d to analyse the effect of product placement on brand

recall in movies. Cohen's d serves as a statistical measure that quantifies the effect size between two means, expressed in standard deviations. This metric is particularly pertinent in the context of marketing research since it allows researchers to assess the effectiveness and impact of interventions or treatments. Regarding product placement, Cohen's d offers information about how well this strategy works to promote brand memory. By interpreting Cohen's d values, marketers can ascertain whether the differences observed in brand recall due to product placement are meaningful. Cohen's d values around 0.2 denote a minor effect, 0.5 a medium effect, and 0.8 or above a substantial effect. The greater the Cohen's d value, the stronger the effect (34). The individual studies show varying effect sizes, with most falling between 0 and 2, suggesting small to large effects. The overall effect size (Cohen's d = 0.89) indicates a large effect size of product placement on brand recall. The p-value (0.00) confirms that this overall effect is statistically significant, suggesting that product placement significantly impacts brand recall across the studies analysed.

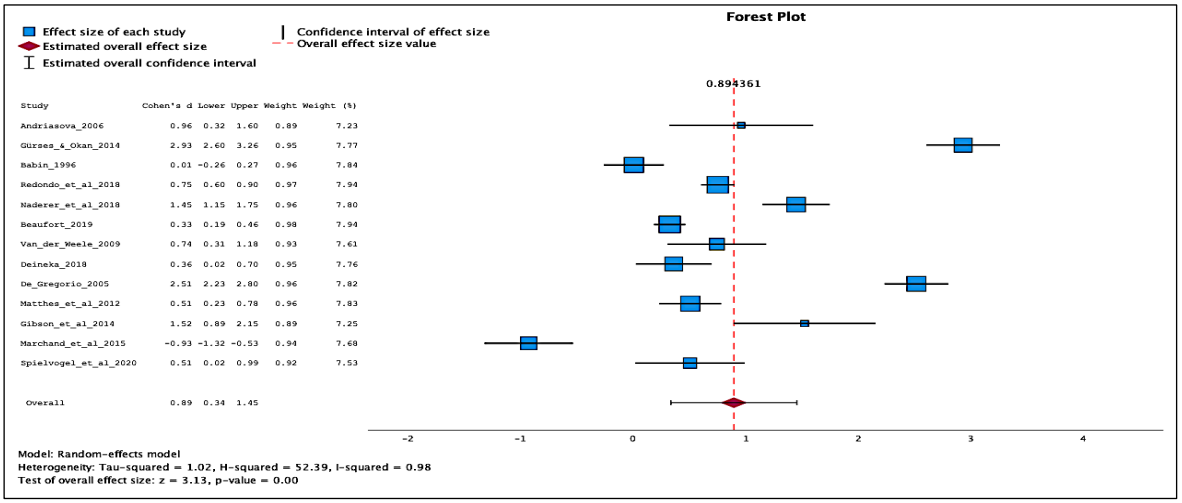

Figure 2: Forest Plot

Also, the estimated variance between the studies is represented by the tau-squared value (35). The τ^2 value of 1.02 indicates the variance or heterogeneity amongst the studies. Thus, it can be inferred that the studies incorporated cannot be considered studies of the same group. According to the data presented in Figure 2, it can be inferred that the combined effect size ranges from 0.34 to 1.45 at a confidence interval (CI) of 95%. "Wide CIs indicate uncertainty; narrow CIs indicate precision" (36). Therefore, the estimated combined effect size of 0.89 is considered to be highly precise. To test the hypothesis, the z value (z = 3.13) is used and since the p-value is significant (p = 0.00) and the CI doesn't include zero, the null hypothesis (H_1) is rejected. Hence, it is inferred that there is a positive and significant effect of Product Placement on Brand Recall in movies. In meta-analysis, I^2 is employed to gauge the proportion of variance attributed to heterogeneity (37). Typically, heterogeneity levels of 25%, 50%, and 75% indicate low, moderate, and high levels of heterogeneity (38). This study's I^2 value of 98% indicated a significant degree of heterogeneity. An I^2 value of 98% indicates that nearly all the variability in effect sizes across the studies in the meta-analysis is due to heterogeneity rather than sampling error. Such a high I^2 value signals the substantial differences between the studies included, which can arise from various sources. The potent reasons such as differences in study design and methodology could significantly impact the results. For example, studies might vary in terms of the type of movies analyzed, the prominence of product placement (subtle vs. prominent), or the duration of exposure. Also, the modality of product placement (visual vs. auditory) affects recall differently (39). Additionally, audience demographics like age, culture, and familiarity with the brand can further exacerbate these variations, as some populations may be more receptive to product placements than others. These variations underscore the need for conducting moderator analyses in this study, to isolate and better understand the factors contributing to this substantial heterogeneity.

Table 2: Moderator Estimates in the Meta-Regression

					95% Confidence Interval	
	β Estimate	**se**	**Z**	**p**	**CI Lower Bound**	**CI Upper Bound**
Intercept	1.103	0.91	1.213	0.251	-0.899	3.105
Target Audience	-0.173	0.698	-0.25	0.808	-1.71	1.363

Moderator Analysis

The results of moderator analysis depicted in Table 2 indicate that, although product placement affects brand recall (with a positive intercept **β = 1.103**), the target audience group (categorised as children and adults) does not significantly moderate this relationship (p = 0.251). In practical terms, the statistically insignificant difference (p = 0.808) in brand recall between children and adults suggests that both age groups respond similarly to product placement strategies in movies. This consistency implies that marketers can confidently implement product placement across a diverse audience without needing to customize their approach significantly for different age demographics. Given the non-significant difference, it may be more efficient for advertisers to invest in high-quality, well-integrated product placements that resonate with broad audiences rather than tailoring campaigns specifically for children or adults. Since both groups seem to recall brands similarly when exposed to product placements, marketers could maximize reach and brand impact by choosing movie genres and platforms that attract a wide range of age groups. Additionally, the cost-effectiveness of using a single product placement strategy across both demographics might allow companies to optimize their marketing budget while still achieving strong brand recall outcomes.

Table 3: Heterogeneity Statistics after Moderator Analysis

Heterogeneity Statistics						
Tau	**Tau²**	**I²**	**H²**	**R²**	**df**	**Q**
1.049	1.1012 (SE = 0.486)	97.92%	47.962	0%	12	467.385

Even after conducting the moderator analysis, the high Tau, Tau^2, I^2, and Q values portrayed in Table 3 indicate that significant heterogeneity remains across the studies. This suggests that the moderator (target audience group) does not significantly reduce the variability in effect sizes. The R^2 of 0% further supports that the moderator has no explanatory power for the differences between studies. Therefore, other factors beyond the audience group (e.g., study design, product placement modality, and cultural factors) should be explored to better understand the sources of heterogeneity.

Publication Bias

Simple scatter plots called funnel plots are used to display treatment estimates based on individual study results against a size measure. The reason behind the naming of the "funnel plot" is that as the sample size of the research being reviewed rises, the estimated underlying treatment effect becomes more precise (40). The trim and fill approach funnel plot is displayed in Figure 3. The effect size (Cohen's d) is represented by the X-axis, and the standard error value is represented in the Y-axis. The results from smaller studies will disperse more widely at the graph's lower end as the number of studies in the sample increases. The spread will contract as more studies are carried out. The plot will have an inverted funnel form that is symmetrical when there is no bias. On the other hand, biased data frequently produce asymmetrical and skewed funnel plots (41). The funnel plot demonstrates that there is no publication bias because the effect sizes of the studies included in this analysis are uniformly distributed on both sides of the vertical line in the upper and middle regions.

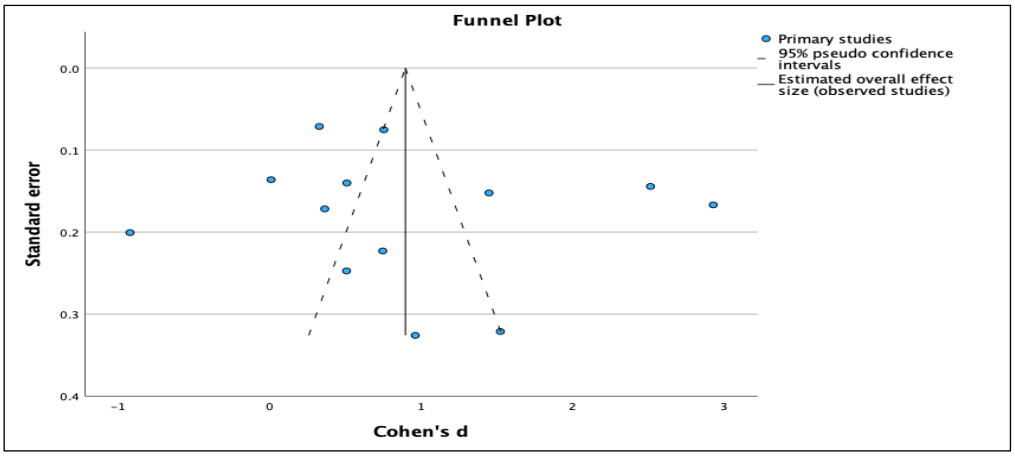

Figure 3: Funnel plot

Table 4: Results of Egger Regression

Egger's Regression-Based Test[a]						
Parameter	**Coefficient**	**Std. Error**	**t**	**Sig. (2-tailed)**	**95% Confidence Interval**	
					Lower	**Upper**
(Intercept)	.748	.7664	.976	.350	-.939	2.435
SE[b]	.812	3.9095	.208	.839	-7.793	9.416

a. Random-effects meta-regression; b. Standard error of effect size

Egger's Regression

Examining a funnel plot visually might lead to an inaccurate understanding of whether publication bias is present or not. When there is substantial heterogeneity, it is generally recommended to use Egger's test for the formal statistical test of the asymmetry (42). Egger's test (Table 4) was used in this study to evaluate the relationship between the Standard error and Standardized effect estimates. When the regression slope is significant, it indicates a bias and vice versa (43). Given that both the intercept ($p = .350$) and the SEb coefficient ($p = .839$) are not statistically significant ($p > 0.05$), this Egger regression test does not provide evidence of publication bias. The non-significant p-values indicate that the results of the meta-analysis are not overly influenced by biased publication tendencies. This lends credibility to the overall findings of the study.

Discussion

The impact of product placement on brand recall in motion pictures is examined in this meta-analysis research. Because consumers are unable to ignore brand advertisements that are woven into movies, the study concentrated on this medium. Plot integration, audio stimulation, visual stimulation, and customer purchase intentions are all influenced by brand memory, which is a critical factor (44). The study sought to ascertain whether viewers pay attention to and can recall the brand's advertisements by monitoring brand recall throughout movies. This information can assist marketers to enhance their advertising campaigns. Product placement has a significant and advantageous impact on brand recall, according to study findings. According to a previous meta-analysis (18), these findings are consistent with the association between brand placement and brand placement memory in a broader context. The product placement effect, which is frequently used in movies, was the subject of this study. A related study found that brand recall greatly influenced consumers' purchase intentions when it came to product placement in movies (45). As opposed to other forms of communication, product placement increases brand recall. As a potent tool for marketers, product placement successfully increases brand memory (46). Plot integration, audio stimulation, visual stimulation, and customer purchase intentions are all influenced by brand memory (44). The results of the current study demonstrated that product placement had a significant and advantageous impact on moviegoers' recollections of brands. The study results contribute to the extant literature by offering empirical proof that consumers do pay

attention to and effectively remember brand commercials that are interwoven within movies.

Conclusion

The results of this meta-analysis underscore the significant role that product placement in movies plays in enhancing brand recall among viewers. An overall effect size of Cohen's d = 0.89 indicates a large and statistically significant impact of product placement on brand recall, confirming the effectiveness of this marketing strategy. The data suggest that integrating brands into movies leads to higher memory retention, reinforcing the value of this approach in connecting with target audiences. The high heterogeneity value (I^2 = 98%) further illustrates the variability in effects across different studies, emphasizing the need for deeper investigation into the factors contributing to these discrepancies. Such factors may include study design differences, types of products, the prominence of placements, and audience demographics, highlighting areas for future research. Interestingly, the moderator analysis indicates that the target audience—children versus adults—does not significantly influence the effectiveness of product placement on brand recall. Both age groups exhibit similar recall rates, suggesting that a uniform approach to product placement may be beneficial across diverse demographics. This insight can guide marketers in creating strategies that capitalize on the broad appeal of product placements without necessitating significant customization for different audience segments. As brands continue to seek innovative avenues for reaching consumers, the findings from this study provide compelling evidence that product placement in movies not only enhances brand visibility but also effectively engages audiences in a way that traditional advertising may not.

Abbreviation

Nil.

Acknowledgement

Nil.

Author Contribution

Preethy Rose M: Conceptualization, Data curation, Investigation, Resources, Validation, Writing – original draft, Writing – review & editing; Dr. R. Shanthi: Methodology, Project administration, Supervision.

Conflict of Interest

The authors have no competing interests pertinent to the context of this article to declare.

Ethics Approval

Not applicable.

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