

Research on the Impact of Sports Short Videos Product Placement on Consumer Purchase Intention

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Abstract: With the fast growth of mobile Internet technology, people are spending more and more time watching short videos on their phones. In response to the fragmentation of users' use of mobile terminals, product placement in short videos is also gradually gaining favor. This study aimed to explore the impact of sports-related short video product placement on consumers' purchase intentions. In this paper, the SOR model was used, different influencing factors were added to the model, and SPSS 26 was used for significant impact analysis. The conclusion of this study was that consumers pay more attention to the attitude and relevance of product placement and that good advertising attitude and highly relevant advertising can have a positive impact on their purchase intention. Therefore, video creators should pay more attention to advertising content, improve advertising quality, and increase highlights, which will have a certain production direction for video creators or advertisers, and strive to produce excellent videos.

Keywords: short video, product placement, SOR theory, purchase intention

1. Introduction

1.1. Research Background

In recent years, due to the rapid development of new media, Short videos frequently appear in people's work and life. According to the 50th Statistical Report on Internet Development in China released by the China Internet Network Information Center, As of June 2022, the number of short video users was 962 million, accounting for 91.5% of the total netizens [1]. Influenced by short videos, the way people receive information is gradually changing. At the same time, the focus of corporate advertising communication has also shifted from traditional media to new media, and the ways of corporate marketing have also become diverse, such as live streaming goods, advertising implantation, etc., among which the placement of advertisements in short videos is an extremely common ways of publicity for enterprises for their products and services. Because the short video platform has a powerful data calculation function, it can accurately push short videos according to the user's preferences. So that many video bloggers have followed this model of "short video + advertising", which is the low-cost, high-return. Because of the COVID-19, many people can't take part in any outdoor activities, besides people are more eager to go out, but also strengthen physical exercise. On major short video platforms, short videos and live broadcasts which about sports and fitness continue

to become popular, what's more, sports short videos are also a hot topic that many video bloggers pay attention to.

About the definition of short videos, iResearch defined short video as "second as the unit, mainly rely on mobile intelligent terminal to implement fast shooting and beautifying editing video. It can also be shared in real time and seamlessly across social media platforms." In the "China Short Video Industry Development Research Report 2016", and its duration has also changed from 5 minutes to 10 minutes [2].

Discussion of Product Placement, Balasubramanian and other scholars have defined it as early as 1994 [3]. However, with the development of science and technology, the continuous update and iteration of media communication technology and means, there are other scholars who put forward different views and views. After referring to relevant research, this study defines short video product placement as follows: the video bloggers, after having a considerable fan base, promote the product or brand by placing advertisements in his or her short video to earn promotion fees or directly sell products. Compared with traditional film and television product placement advertising, short video product placement advertising is characterized by "short", "fast" and "precise delivery". To a certain extent, the scope and speed of advertising are improved, the efficiency of advertising is improved. In addition, the form of implantation is more diverse and creative, and the audience acceptance is higher than that of film and television product placement [4].

1.2. Research Gap

Some scholars have done research to find out which parts of product placement affect how and what people do when they buy something. For decades, one of the most popular ideas in advertising literature has been that a number of factors in advertising influence consumer behavior. Song and Li reached relevant conclusions in 2018. Improving the relevance of ads and videos can evoke consumers' memories of products, but some factors are mutually exclusive, and improper application will not generate positive emotions among consumers [5]. Wang and others conclude that choosing the right brand to embed in videos and scientifically scheduling the advertisement will help improve the advertising effect and increase its attention [6].

Previous studies mostly looked at how product placement in short videos affected consumer decisions or intentions, and there are gaps in how product placement is shown in short videos. In particular, no study has considered the combination of sports-related short video product placement and consumers' purchase intentions. In order to fill the gap, this article will focus on "which factors of sports-related short video product placement affect consumers' purchase intention".

1.3. Structure of This Paper

Based on the existing research, this paper studies the influencing factors of sports short video advertising on consumers' purchase intentions by designing a scale according to SOR theory. The first main contribution proposed in this field is helping video bloggers and advertisers plan the content and direction of advertising in the future. At the same time, it can also enable consumers to buy the products they want more efficiently.

2. Literature Review and Hypothesis

2.1. Definition of S-O-R Theory

The famous stimulus-response model, which Mehrabian and Russell came up with in 1974, is what the SOR model is based on. In the model, the outside environment affects how a person thinks and feels, which in turn affects how that person acts. In the SOR model, stimuli are anything that changes

the state of the organism in a person. A full SOR model should have variables for the stimulus, one or more sets of mediating variables, and variables for the response. This way, the relationship between the stimulus and the response can be well described.

2.2. Important Results

In 1982, Donovan and Rossiter adapted the model. For the first time, the SOR model was applied to a shopping scenario [7]. It is proposed that the individual's emotional state at the time of shopping will affect their profit-seeking and harm-averse behaviors. Jacob's 2002 paper also argues that consumer behavior occurs because individuals are stimulated by external factors to trigger certain emotional or cognitive responses, which in turn produce tendencies toward or avoidance of consumer behavior [8].

Based on the SOR model, this paper studies the impact of sports-related short video product placement on consumers' purchase intentions. This paper mainly discusses the time distribution of implantation, the duration of implantation, and the correlation with video content. The independent variable is a short video product placement, the middle variable is advertising attitude, and the dependent variable is consumers' purchase intention.

Liu investigated the effect of video advertising duration on advertising effectiveness in 2015 [9]. In 2016, Yu studied the impact of factors such as the length of online video advertisements and the type of advertisements on consumers' desire to buy and conducted research and discussion on different advertising placements [10].

As early as 2000, foreign scholars found that advertising attitude can directly affect purchase intention [11]. In 2021, Cao et al. conclude that at a certain income level, consumers are likely to make purchase decisions based on subjective evaluations of products and their own various information, including subjective factors such as attitudes towards psychological activities [12]. Yan also confirmed in 2014 that if consumers have a positive attitude after exposure to advertising, they will be interested in the advertised product, which will eventually affect the purchase decision [13].

2.3. Summary

In summary, most of the literature discusses the impact of traditional online video advertising on consumers' purchasing behavior decisions and lacks research on new media product placement. Compared with ordinary online video advertising, the audience has higher and stricter requirements for short video product placement.

According to the characteristics of product placement in short videos, this study exploits the SOR model, and the following Figure 1 is the research model.

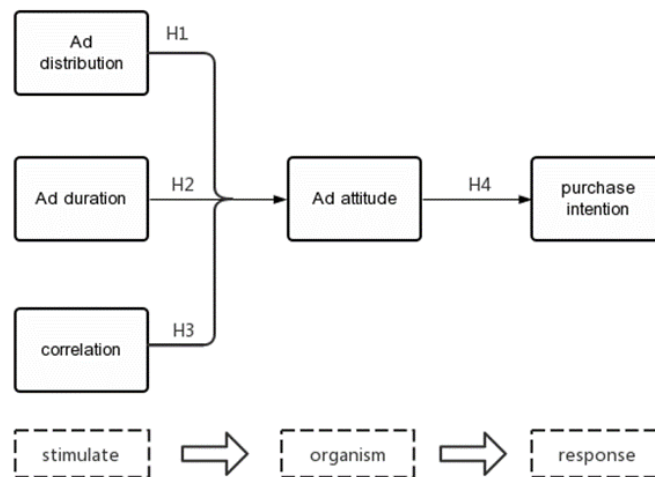


Figure 1: Structure of this paper.

2.4. Hypothesis

In 2016, Ren explored the effect of patch advertising in different time distributions through eye tracking experiments and concluded that the average fixation time of pre-roll advertisements was significantly higher than that of inter-roll and post-roll advertisements [14]. However, because short video audiences can quickly choose to watch other videos when using the short video platform, the pre-roll type attracts too much attention from the audience, excluding visually interesting ads, and more audiences will choose other short videos to watch. In summary, the following research hypotheses are proposed:

H1: Placing ads in the middle of short sports videos has a positive impact on purchase intention.

Cheng concludes that blindly lengthening the pre-post advertising time of a video will affect the user's goodwill and stickiness, and the user's goodwill is usually considered to affect the consumer's purchase decision [15]. Zhao Jing concludes that the length of ads in videos is too long, which reduces users' tolerance [16]. In summary, the following research hypotheses are proposed:

H2: Excessive length of product placement will have a negative impact on purchase intention.

The types of advertisements implanted in short videos are divided by the degree of correlation with the plot, which can be roughly divided into two types: one is to directly insert advertisements in short videos, mostly by Internet bloggers through oral advertising words; the second is in short videos, combined with short video content, or presented as props. Liu pointed out in "Analysis of the Advantages and Disadvantages of Product Placement in China's Film and Television Dramas" that when product placement is too blunt to be cleverly combined with the plot of film and television dramas, people will directly block it and even produce antipathy [17]. In summary, the following research hypotheses are proposed:

H3: Increased relevance of product placement can have a positive impact on purchase intention.

Advertising attitude is a mediating variable of advertising effectiveness and has an important impact on brand attitude and purchase intention [18]. In summary, the following research hypotheses are proposed:

H4: Product placement attitudes have a benefit on purchase intention.

3. Method

3.1. Research Design

This paper applies quantitative research methods through the method of distributing questionnaires, based on the hypotheses presented. Refer to the maturity scale of the existing literature to determine the measurement items for each variable in this research model. And design the questionnaire according to the research context and purpose. Data collection is carried out in the form of online questionnaires, and the data collected by the questionnaire is analyzed by using SPSS 26 statistical software to complete the steps of pre-research and formal research.

3.2. Data Collection

This paper adopts the questionnaire method, and the questionnaire is designed by referring to the mature scale that scholars have studied and combining it with the actual situation of short video product placement.

The questionnaire is divided into three main parts: the first part is a quotation, which explains the purpose of the survey to the respondents; the second part is the personal information of the respondent, including the gender, age, and education of the respondent; and the third part is the evaluation scale of consumers' attitudes, behaviors, and purchase intention when encountering short video product placement. All variables in the questionnaire were on a five-level Likert scale, with 1 indicating "strongly disagreeing," 3 being "neutral," and 5 indicating "strongly agreeing."

There are five core variables in this study, which are divided into three parts according to the S-O-R model: the first department is stimuli: advertising duration, advertising distribution, and relevance; the second part is an organism: advertising attitude; and the third part is individual response: purchase intention. The specific design is as can be seen in Table 1:

Table 1: Measurements.

Variable	Measure the project
The length of the ad placement	If the ad in the video is less than 20s long, I will continue to watch this video.
Distribution of product placements	I'm more comfortable with ads in a video than ads at the beginning and end.
correlation	If the implemented ad is related to the video content, I won't be disgusted.
Advertising attitude	Compared to traditional advertising, I am more receptive to product placement which is more impressive.
Purchase intention	I would have a desire to buy their products because of the ads I inserted.

This article is mainly distributed through the network collected from different individuals through the Questionnaire Star online survey. Due to the limited conditions for online distribution, the target of this questionnaire distribution is mainly 18-29 people, and 150 questionnaires are expected to be returned.

3.3. Data Analysis

A total of 145 questionnaires were recovered, of which 106 were valid, and the questionnaire efficiency reached 73.1%. In this study, SPSS 26.0 statistical software was used to analyze the data obtained from the survey and verify the research hypothesis proposed in this study.

In terms of gender, there were 61 males and 45 females, accounting for 57.5% and 42.4% of men and women, respectively, with a slightly larger proportion of men, but the overall gap was not too large. In terms of age, the respondents were divided into 5 levels, of which 91.5% were aged 18-29, and the overall sample highlighted the characteristics of youthfulness. In terms of occupation, students accounted for a large proportion, divided into 98 people, accounting for 92.4%; in terms of education level, there are 102 people with a bachelor's degree or above, accounting for more than 90%, and the overall quality is relatively high. Among them, the proportion of people who watch short videos and exercise every day exceeds 70%, which is more in line with the survey requirements.

4. Results

From Table 2, it is found that the value of R square is $0.227 > 0$, indicating that this model is valid and meaningful. R Square can be used to test the fit of the model, and when R Square > 1 , it means that the model can hold.

Table 2: Regression statistics.

Regression Statistics	
Multiple R	.477
R Square	.227
Adjusted R Square	.197
Standard Error	.876
Observations	106

The results of ANOVA in Table 3 are the validity test of the regression equation, SSR stands for regression variance and SSE stands for residual variance. F value is 7.425, meanwhile, the P-value is 0.000 which is smaller than 0.05, so the regression equation is meaningful.

Table 3: ANOVA.

	SS	df	F	P - Value
Regression	22.778	4	7.425	.000
Residual	77.458	101		
Total	100.236	105		

When the P value is less than 0.05, it indicates that there is a significant relationship between the independent variable and dependent variable; when the P value is greater than 0.05, it indicates that there is no significant relationship between the two. As can be seen from Table 4, only the Ad Attitude (coef. = 0.395, $P < 0.05$) and Correlation (coef. = 0.250, $P < 0.05$) have positive and significant effect on Purchase Intention. As for the other two variables, either Ad Distribution (coef. = $-6.271E-5$, $P > 0.05$) nor Ad Duration (coef. = -0.034 , $p > 0.05$) could not make any significant effect on Purchase Intention.

Table 4: Coefficients.

	Coef.	S.E.	T	P	L-95%	U-95%	L-95%	U-95%
Ad Attitude	0.395	0.124	3.200	0.002	0.150	0.640	0.150	0.640
Ad Distribution	-6.271E-5	0.085	-0.001	0.085	-0.169	0.169	-0.169	0.169
Ad Duration	-0.034	0.088	-0.386	0.700	-0.208	0.140	-0.208	0.140
Correlation	0.250	0.111	2.262	0.026	0.031	0.469	0.031	0.469

Therefore, suppose that H1 and H2 do not hold and assume that H3 and H4 are true.

Based on the above conclusions, after deleting the data on advertising duration and advertising distribution, the following tables (Table5, Table 6 and Table 7) are obtained by analyzing it again.

Table 5: Regression statistics.

Multiple R	0.476
R Square	0.226
Adjusted R Square	0.211
Standard Error	0.868
Observations	106

Table 6: ANOVA.

	df	SS	MS	F	P-Value
Regression	2	22.778	11.332	15.046	.000
Residual	103	77.572	.753		
Total	105	100.236			

Table 7: Coefficients.

	Coef.	S.E.	T	P	L-95%	U-95%	L-95%	U-95%
Ad Attitude	0.387	0.109	3.563	0.001	0.171	0.602	0.171	0.602
Ad Correlation	0.234	0.102	2.302	0.023	0.032	0.436	0.032	0.436

Compare with the previous table, R square becomes larger, which indicated that the model is in a better fit. The above tables show that attitudes towards advertising can affect consumers' purchase intention and the more positive consumers' attitudes towards advertising, the stronger their willingness to purchase the advertised product. Relation can also affect consumers' purchase intention, and the stronger the relation of advertising content, the stronger the consumer's intention will be.

5. Discussion

Through this study, it was found that consumers will have different attitudes toward different types of advertising relevance, which in turn affects their purchase intentions. All else being equal, the stronger the correlation, the stronger the consumer's willingness to buy.

Based on the above research results, the following suggestions are proposed: Firstly, this study concludes that video creators should pay attention to the way product placement is presented in the

video because a single, blunt insertion of ads into the video may produce negative emotions, which will affect consumers' purchase intentions. On the contrary, the way of placing advertisements has become more diverse, and advertisers try to choose products related to video content that consumers can easily associate with, which enhances their purchase intention.

Secondly, through research, it can be seen that the more positive the consumer's attitude towards advertising, the stronger the willingness to buy, and the higher the likelihood of purchasing the product, which in turn may affect the consumer's attitude towards the product or brand. Video creators should collect audience attitudes towards video ads after they have implemented them and make improvements and modifications to improve the look and feel of the ads and reduce the negative benefits of product placement.

Through this study, it was found that the correlation and advertising attitude between advertising content and video content will affect consumers' purchase intentions, which is basically consistent with the previous research of most scholars. However, this paper disagrees with some scholars on whether different advertising durations and different advertising distributions have a significant impact on consumers' purchase intentions.

From the perspective of consumers in online shopping, this article discusses the influencing factors of short video product placement on consumers' purchase intentions and provides support and proof for short video creators to bring goods or monetize traffic in the future. At the same time, it calls for improving the overall quality level of product placement so that the audience can have a better look and feel.

6. Conclusion

In recent years, with the rapid development of new media, the placement of advertisements in short videos has also become a popular method of publicity for advertisers. This is due to the fact that short videos tend to have a larger audience than longer videos. In this post-pandemic era, people are paying more attention to health and sports, and as a result, "sports" short videos have become a popular topic for many people who create videos. This study compiles the literature on product placement advertising using the SOR theory, and it puts forward the hypothesis that advertising duration, advertising distribution, advertising attitude, and relevance all affect consumers' intentions to make a purchase. A data collection questionnaire was administered online, and SPSS 26 was used to analyze the results. Following the completion of a correlation analysis, the following conclusion is reached: advertising attitudes and relevance will have a positive impact on the purchase intentions of consumers.

The hypothesis is put to the test in this study, and the findings indicate that the correlation between advertising and video and advertising attitude has varying degrees of significance when it comes to its relationship with consumers' intentions to make a purchase.

Nonetheless, there are still a few things that may be improved:

First, the model that was constructed for this paper only takes into account the influence that product placement in short videos has on consumers' intentions to make a purchase. It does not take into account the influence that other factors have on consumers' intentions to make a purchase, and it lacks a certain level of rationality. In subsequent research, the model will be improved in order to obtain results that are more comprehensive.

Second, the sample size is not very large and therefore has some restrictions. It is essential to increase the size of the sample and conduct research into the differences that exist among consumers of varying ages and educational backgrounds.

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