Doctoral Dissertation

Study on influencing factors of the effect of product placement in Chinese animations based on cognition, attitude, and purchase intention

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Abstract

In recent years, Chinese animation has developed rapidly. Only in 2021, the box office of Chinese animated films exceeded 5 billion yuan, and the number of broadcasts of anime exceeded 1 billion. Such a huge market has attracted many brands to use animation as a hot platform for promotion, showcasing their products and brands, and benefiting from this marketing strategy. Animation also actively responds to brand cooperation and receives the early investment in production through product placement. However, this seemingly "win-win" situation still has some problems. Such as how to measure the product placement effect in animation, what kind of brand is suitable for implanting in animation, and what are the differences in product placement effect of different media type?

Although the relevant theoretical research on product placement has focused on traditional media such as movies and TV programs, as well as new media such as YouTube and Facebook, the number of research on animation is limited. Among the limited researches on product placement in animation, all of which choose children as the research object. However, it ignores the real consumer group of animation, the pan-secondary group, which has huge consumption power and spans multiple age groups. Therefore, this study focuses on the product placement effect in animation on pan-secondary group.

For literature research part of this study, firstly, based on communication persuasion theory, the two-step flow communication theory, AIDMA theory, and Lavidge and Steiner six-step theory, the three main parts of the product placement effect in animation were determined, which were cognition, attitude, and purchase/use intention. Secondly, the influence factors were identified, including brand awareness (high-profile brands and low-profile brands) and animation type (animated film and anime).

For the experimental research part, the research was carried out through questionnaire survey which was designed using 5-point Likert scale, in order to investigate the cognition, attitude and purchase/use intention of the pan-secondary group towards the implanted brand in animations. And animated films with high box office and anime with most platform views in China were selected as stimuli. The entire experiment procedure was divided into five parts: 1) notifying the informed consent; 2) completing the basic information questionnaire; 3) completing the pre-test questionnaire; 4) watching the animation segments; and 5) completing the post-test questionnaire. A total of 230 valid questionnaires were collected in this experiment, and the data were analyzed by comparative research, correlation research and factor analysis.

The results show that, firstly, in terms of brand awareness, the effect of product placement for low-profile brands in animations is better than that of high-profile brands. Through the implantation of low-profile brands in animations, the

audience can deepen their understanding of the brand, improve their favorable impression for the brand, and promote their consumption desire. Secondly, in terms of animation type, the product placement effect of brands in anime is better than that in animated films. Thirdly, there exists a significant correlation between cognition, attitude, and purchase intention, among which attitude and purchase intention have a positive and strong correlation. Fourthly, a mathematical model predicting the product placement effect in animations on pan-secondary group was developed. And this mathematical model intuitively indicates that attitude is the most significant influencing factor.

Through considering the pan-secondary group as the research object, as well as combing with relevant examples, this study discusses the impact of different influencing factors on the product placement effect in animation, which expands the existing research range of product placement. Meanwhile, this study also provides practical guidance for animation producers and advertisers on how to implant brands into animations in a scientific and reasonable way, so as to recover capital investment and increase marketing revenue.

Keywords: *Chinese animation; Pan-secondary group; product placement; cognition; attitude; purchase intention*

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Chapter 1 Introduction

1.1 Research Background

In the animation *Wish Dragon*, every time the protagonist dragon eats "Qinqin Snack", it says "Magnificent" to express the delicious taste of the snack, with an exaggerated and joyful expression. In the animation *The Three-body Problem*, the protagonist usually drives a car with "ChangAn Deepal" logo travelling through the streets of a futuristic world. In the animation *Fei Ren Zai*, the tired animal protagonists after working overtime enter the "Pizza Hut" restaurant, and change to human shape after eating the delicious food. These clips are not appeared in the animation by accident. Instead, they are specially designed in order to place the brand or product in the animation, which is called as product placement.

The animation *Popeye* is considered to be the first animation with product placement. Every time Popeye eats a can of spinach, he sings "I'm Popeye the Sailor Man, I'm strong to the finich, because l eats me spinach." Afterwards, he becomes very strong, and then Bluto is always vanquished by the invincible Popeye. The animation *Popeye* cleverly took advantage of the prevalent iron deficiency among American children in the 1930s, and successfully sparked a craze for spinach consumption, resulting in a 33% increase in spinach sales at that time. This example demonstrates the enormous potential of product placement in animation in enhancing brand awareness and promoting market response.

In China, the combination of animation and advertisement has a long history, spanning over 100 years. In 1922, the Wan brothers produced the animation *Shu Zhendong Chinese Typewriter*, which is not only the first advertising animation in China, but also the symbol of the birth of Chinese animation. After that, the Wan brothers produced another two advertising animations, *YiLi Soda* and *Monosodium Glutamate*. With relaxed and humorous content, these two advertising animations obtained the favor of consumers, bringing huge profits to the product at that time, which

laid the foundation for the position of advertising animations in marketing (Guo & Li, 2017).

In the 1970s, businesses began to develop rapidly in China. In order to sell goods, it was necessary to advertise the product widely, and there were even Cantonese versions of advertisements targeting for the consumers in Hong Kong. For example, for the advertising animation for "White Cat" brand laundry detergent in 1980, a combination of real shooting and animation was adopted. Through the direct contact between the animated characters and the real objects as the background, the interactive effect could be achieved, so that the audience would have a deeper impression on the brand "White Cat". This combination of real shooting and animation approach takes advertising animation one step forward.

In 1993, Haier Group and Beijing Hongye Computer Animation Production Technology Co., Ltd. jointly produced the animation *Haier Brothers*, with an investment of 300,000 yuan per episode. Based on current purchasing power, the average investment is equivalent to over 30 million yuan per episode. The animation series broadcast for four seasons, with 54 episodes per season, in total, 212 episodes were produced.

Haier Brothers became one of the most popular animations of the 1990s due to its high investment and high quality. Even though Haier Group conducted a huge investment on this animation, none of the Haier's products were implanted. Instead, the animation focused on creating a positive image of protagonists, the Haier Brothers, who are not afraid of any difficulties. Every time the audiences saw the protagonists, the Haier Brothers, they would associate them with the "Haier" Brand. With the continuous broadcast of animation *Haier Brothers*, the positive and optimistic brand image of "Haier" brand has been deeply rooted in audiences' mind. This greatly promoted the sales of Haier's product, and made "Haier" quickly become an international household appliance brand.

The animation *Haier Brothers* not only brings short-term marketing benefits to Haier Group, but also has a long-term impact on potential consumers. Many people born in the 1980s and 1990s enjoy watching *Haier Brothers* when they were children. As they grow up, these consumers will also choose Haier products which they are very familiar with.

Through incorporating customized characters into animations, *Haier Brothers* has achieved excellent implantation effects, and this has pioneered the use of product placement in Chinese animation. At the same time, the animation production company, Beijing Hongye Computer Animation Production Technology Co., Ltd., also became the largest computer animation production company in China. Therefore, it can be seen that the success of animation is not contradictory to the success of product placement, and animation producers and product placement investors can achieve a win-win situation.

The development of product placement in animation is closely related to the animation industry. With the development of computer technology, animation is gradually no longer exclusive to children. At the beginning of the 21st century, Flash player entered China, and Flash animation became popular over the internet. Young people established a series of "Flash Forum", so as to upload their own flash works. At this stage, the animation is mainly produced by individuals, and there are few product placements in the animation. However, advertising animation using flash as the medium has begun to take shape, where the manufacturer can use simple pictures and easy sound effects to promote product features and brand image.

The period from 2011 to 2014 is an important stage in the transition from Flash animation to anime series. In the transformation stage, Flash animation gradually exits the historical stage, and anime series officially appear. Major online video platforms (bilibili, Tencent, Youku, and iQIYI) have gradually completed the construction of their animation video sections and formed an initial industry scale. A large number of Japanese anime have become familiar to audiences, and Chinese anime have begun to

be produced and broadcasted through online platforms. However, at this stage, the number of commercial placements in Chinese anime is still limited.

With the increasing number of Chinese anime and the gradual formation of the animation market, Chinese animated films have also made breakthroughs. The animated film *Monkey King: Hero is Back*, released in 2015, has won the favor from audiences of all ages because of its outstanding creativity and high-level production skills, ultimately achieving a box office of 627 million yuan. During this period, Chinese animated films are no longer solely targeted at children, they start to attract more adult audiences. After 2018, the Chinese animation market entered a period of steady growth, with a significant increase both in the quantity and quality aspects. However, for the two major components of animation: anime and animated films, there are certain differences between them in terms of viewing environment, payment form, broadcast duration, broadcast cycle, production mode and theme. Nowadays, the audience of the animation market has expanded from the secondary group to the pan-secondary group. Pan-secondary refers to the periphery culture related to animation categories, including animation, comics, games, novels, and other forms (ACGN). The secondary group only includes senior animation fans. In contrast, the pan-secondary group covers a broader audience, including those who are interested in animation culture but not deeply involved.

According to the data from "China Secondary Industry Research Report in year 2021", the age group of Chinese animation consumption has expanded from post-95s group to the post-90s and post-80s group, and the scale of pan-secondary users has reached 460 million. It is estimated that by 2023, the scale of pan-secondary users will grow to 500 million, accounting for more than 1/3 of the total population. This can provide a strong driving force for the development of Chinese animation industry. In 2021, the market of Chinese animation is about 20.5 billion yuan, and it is expected to reach 32.3 billion yuan by 2023, with the compound annual growth rate of 12.6% above (iResearch Inc., 2021).

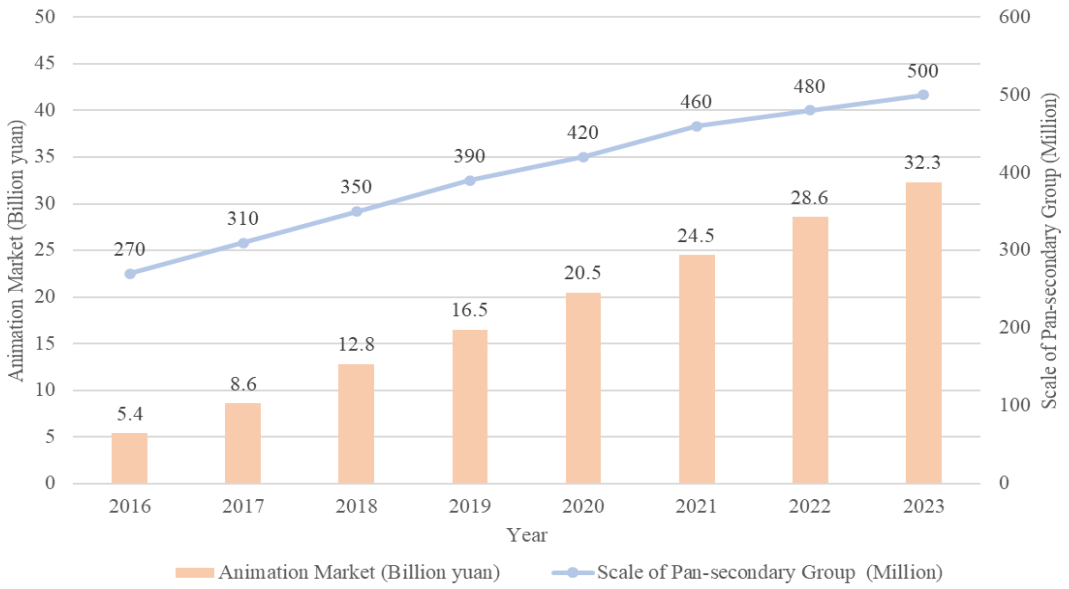


Figure 1-1 Scale of pan-secondary group and animation from 2016 to 2023 (Data retrieved from "China Secondary Industry Research Report in year 2021")

With a promising market and huge consumer groups, Chinese animation industry is unprecedentedly prosperous. However, some problems have gradually emerged. Because the initial investment in animation production is very high, which can easily lead to a break in the capital chain, resulting in many animations have to postpone the broadcast or stop production. In addition, the production cycles for animated films are also too long. For example, the animated film *Big Fish Begonia*, which was produced for ten years, and had stopped many times before releasing. There is because that no product placement implanted in this animation and thus cause the financial constraint in the production procedure. Finally, the production of *Big Fish Begonia* was accomplished relying on the public funding.

Therefore, more and more animation production companies realize that the fund of animation production cannot only rely on the box office. They start to emulate traditional media by incorporating product placement into the animation so as to increase upfront revenue. Actually, in the animation production process, under the premise of non-affecting the viewing experience, adding some suitable product placements can attract the early investment, which can help provide a better financial foundation for animation production.

With the rapid development of product placement in Chinese animation, advertising investment has gradually become standardized. Starting from 2020, more and more animations are seeking opportunities for brand cooperation in the early stages of production.

The form of product placement in animation also presents diversified characteristics. Nowadays, in animation, product placement placement is no longer based on simple prop/background implatation or location implatation, but rather on plot placement or the integration of plot placement and background placement, in order to better fit the characters and story. Because the characters, costumes, props and plot are closer to reality, as well as the difficulty of embedding creative ideas is relatively low, fantasy, funny, science fiction themes are more likely to be favored by advertisers. According to the data from “2024 Trend Report on Chinese Animation”, based on the consumption tendency of young consumers, the types of implanted brands are mainly concentrated in food and games (kpACGN, 2024).

At present, the actual development momentum of product placement in Chinese animation is relatively strong, but the number of academic research is relatively limited. This study uses a combination of qualitative and quantitative research to explore the effects of product placement in animation, providing theoretical guidance for subsequent academic research and practice.

1.2 Research Objective

1.2.1 Main Objective

Based on cognition, attitude, and purchase intention, explore the influence of different factors on the product placement effect in animation, and develop relevant mathematical models.

1.2.2 Sub Objectives

In order to solve this main objective, four sub objectives were put forward:

(1) Sub Objective 1

Determine the influence mechanism of brand awareness on the product placement effect in animation by studying the influence of different brand awareness on the cognition, attitude and purchase intention of pan-secondary groups.

(2) Sub Objective 2

Determine the influence mechanism of different animation types on the product placement effect in animation by studying the influence of product placement in different animation types on the cognition, attitude and purchase intention of pan-secondary groups.

(3) Sub Objective 3

Clarify the correlation effect between pan-secondary groups' cognition, attitude and purchase intention towards the product placement in animtion.

(4) Sub Objective 4

Determine the weights of cognition, attitude and purchase intention, in order to develop a mathematical model for predicting the product placement effect in animations.

1.3 Research Significance and Originality

(1) Clarify the impact of brand awareness on the product placement effect in animation

In the current competitive market environment, brand awareness plays a crucial role in the marketing effect of the brand. Many scholars have pointed out in their research that brand awareness in product placement directly affects consumers' choice awareness and purchasing behavior. For example, when product placements are inserted in Television (TV) program, films, and online game, high-profile brands can often attract more attention and leave a deep impression on people, thus increasing the consumption willingness (Mühlbacher et al., 2016).

However, most of the existing research focuses on traditional media and online media, and there is relatively little research on the effect of brand awareness on product placement in animation. Therefore, this study aims to investigate the impact of different brand awareness on the cognition, attitude, and purchase intention of the pan-secondary group, in order to determine the influence mechanism of brand awareness on the effect of product placement in animation. This fills the gap in this field.

(2) Explore the effects of product placement in different types of animation

Based on the actual situation, the animation has two different type, animated film and anime. Since animated film and anime has significant differences in broadcast duration, release platform, and production cycles. It is needed to research them respectively. However, only a few studies have focused on the product placement effect in animations.

This study focuses on animation and further categorizes animation into two different categories. Through studying the influence of product placement in different animation types on the cognition, attitude and purchase intention of pan-secondary groups, in order to determine the influence mechanism of different animation types on product placement effect in animation. This can fill the existing research gap.

(3) Develop a mathematical model predicting the effect of product placement in animation

In the pervious analyses, the majority of them focused on the impact of product placement on one of the following indictors: cognition, attitude and purchase intention. However, due to the correlation between cognition, attitude and purchase intention level of the audience towards the implanted brand, it was difficult to directly use a single indicator to evaluate the product placement effect. Therefore, for this research, analysis was conducted to clarify the correlation effect between pan-secondary groups' cognition, attitude and purchase intention towards the product placement in animtion.

And the cost of implanting a brand in animations is usually higher than that in other media. Therefore, in order to ensure that the product placement in animation can achieve the expected effect, this study deeply explored the influencing factors product placement in animation based on audiences' cognition, attitude and purchase intention. Through quantitative analysis, a mathematical model predicting the effect of product placement effect in animations was developed, which provided a theoretical foundation for scholars to explore the product placement in animation from an empirical perspective.

(4) Expanding the research object to pan-secondary group

In the existing limited number of studies on product placement in animations, children are usually chosen as the research object. However, as the audience group of Chinese animation has gradually changed from the low-age group to the pan-secondary group, it is more and more inappropriate to choose children as the research object.

Therefore, this research conducted an in-depth analysis on the product placement effect in animations especially for pan-secondary group, so as to further expand the existing research scope of product placement.

(5) Provide practical guidance for animators and advertisers

When embedding product placement in animations, reasonable and ingenious

design is required. If the method of implantation is not appropriate, or the implanted brand is not suitable for the animation, it may cause consumer resentment, thereby producing a counter-effect on the implanted brand, which in turn influence the audiences' impression and attitude towards the implanted brand. Although high exposure may bring certain effects of product placement, the losses and negative impacts caused by untimely product placement are likely to make consumers lose their willingness to purchase the brand.

The results of this study can provide important practical guidance for animation producers and advertisers to implant product placement in animation in a scientific and reasonable way.

1.4 Research Question

Based on the literature review, the evaluation system for measure the effect of product placement is still unclear. The influence of different brand awareness on product placement effect in animation is needed to be analyzed. In addition, the effect of product placement implanted in different animation type is also needed to be analyzed. Therefore, the following questions are expected to be completed in this study:

RQ1: How to quantitively measure the product placement effect in animation?

RQ2: What kind of brand awareness is suitable for implanting in animation?

RQ3: What are the differences in the effect of product placement in different media type?

1.5 Thesis Structure

The structure of this paper is shown in Figure 1-2.

Firstly, Chapter 4 of this paper qualitatively analyzed the product placement effect of different types of animations on pan-secondary group.

Secondly, Chapter 5 of this paper qualitatively analyzed product placement effect of brands with different awareness in animations on pan-secondary group.

Thirdly, Chapter 6 of this paper analyzed the correlation between three indicators of product placement effect, and identify the interactions between cognition, attitude and purchase intention.

Finally, through factor analysis, a mathematical model for the effect of product placement in the animation on pan-secondary group was developed (Chapter 6),

Through addressing the four sub objectives mentioned above, the main objective of this study can be achieved.

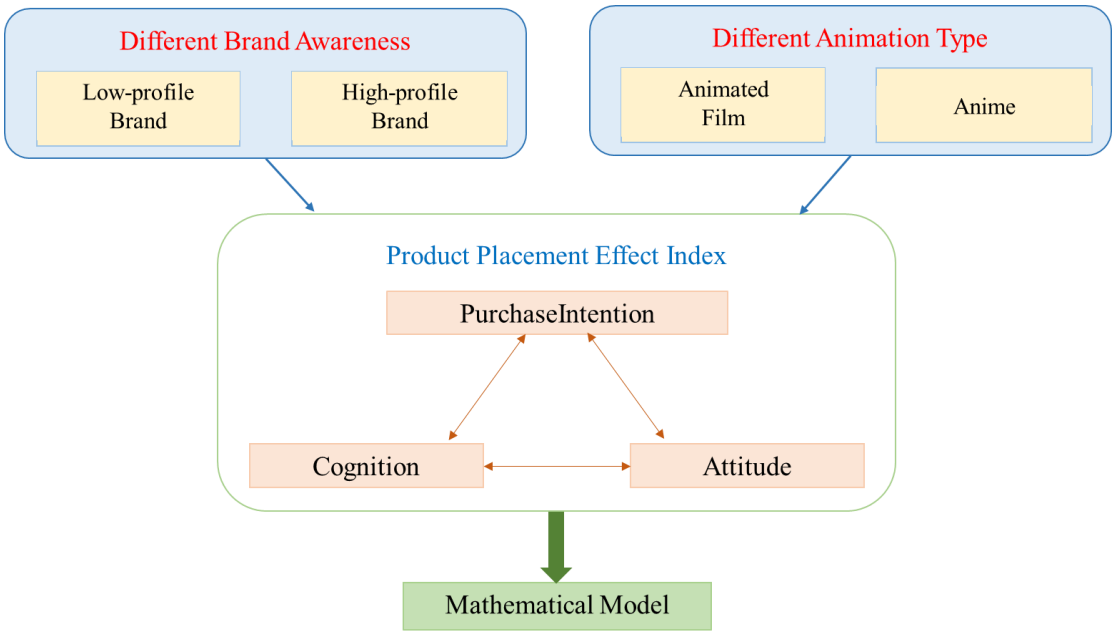


Figure 1-2 Structure of this paper

Chapter 2 Literature Review

2.1 Product Placement in Animation

At present, there is limited research on the product placement in animation, especially on the effect of product placement in animation. And most of these studies focus on children, or behavioral intentions of children and their parents, rather than on adults with independent purchasing ability.

Naderer's group had conducted a series of analysis on product placement in animation. For example, Matthes and Naderer's research analyzed the impact of brand implantation on children's food consumption, and pointed out that children's attitudes as well as behavioral intentions towards food appearing in animations were different from their actual behavior. And children's choice of snacks was greatly improved due to the high frequency of implantation (Matthes & Naderer, 2015).

Naderer et al.'s research in 2016 also discussed the advertising effects of different forms of product placement, and pointed out that the brand implanted via product placement in children's animation was mainly presented in the form of screen placements and plot placements. Their research also demonstrated that moderate and frequent plot placements was more attractive to children's choice of products than screen placement, and parents were also more likely to pay attention this type of product placement (Naderer et al., 2016).

The research of Naderer et al. further compared the screen placement with placement of intimate interaction in the animation They found that the more interaction with characters, the higher the choice of brand for children. In addition, they also found that children would transfer their favorable attitude for characters and plot to the implanted brands (Naderer, Matthes & Zeller, 2017).

Naderer's group also analyzed and sorted out the content of product placement in children's favorite animations over the past 25 years. They believed that product placement in animations needed to be portrayed very vividly. As a result, product

placement in animations was less than in other types of media (Naderer et al., 2017).

In their latest study, for the first time, they shifted the research object from children to people over 16 years old, and examined the different effect of implanting real brands and spoof brands in animations. The results of their study pointed out that the spoofed brand was not easily able to trigger the audience's knowledge persuasion system, which in turn did not stimulate the audience's critical attitude towards the brands. And the audience can understand this kind of spoof product placement, as well as recognize the real source of such spoofed brand (Naderer et al., 2020).

Other scholars have also explored the impact of product placement in animation on children's snack choice. For example, the study of Brown et al. noted that brand appearing via product placement in animation directly affected children's snack choices, where children chose the snacks with high levels of implantation would be 3.1 times more than those with low level of implantation (Brown et al., 2017).

Beaufort's research suggested that after watching product placement containing candy brands, children were more likely to choose the high exposure brand in real-life shopping (Beaufort, 2018).

Villegas-Navas et al.'s research demonstrated that children's food choices were influenced by the product placement appearing in animations, and high-calorie foods that appear in animation were more easily chosen by children (Villegas-Navas et al., 2019).

The research investigation by Spielvogel et al. further confirmed that incorporating product placement into animations can attract children's attention, and unhealthy foods with interactivity were more likely to capture children's attention compared to the one without interactivity. Interactivity referred to the fact that when the implanted food was consumed and rated by the characters in animation, children were more likely to buy the snacks in the reality from the range that had been positively evaluated by the characters. While for food that the characters had not consumed or evaluated, the likelihood of children choosing this product was relatively low

(Spielvogel et al., 2018).

For the research conducted by Binder & Matthes, the results not only confirmed that product placement appearing in animation can attract children's attention, but also pointed out that the attention to the implanted brand would directly affect the consumption behavior. And restricting product placement exposure would have a negative impact on consumption, meaning that reducing exposure degrees was equivalent to reducing consumption (Binder & Matthes, 2023).

In addition, Spielvogel et al. conducted the research on the number of appearances of product placement in animation, and found that children's attention would shift away from the implanted brand appearing repeatedly in the animation. In other words, compared to the single-appearance brand, repeated appearances of a brand can lead to a gradual decrease in children's visual attention the product placement. This is due to the fact that repeated occurrences can activate persuasive knowledge, which turned on cognitive defenses against product placement (Spielvogel et al., 2019).

2.2 Definition of Product Placement in Animation

Product placement is a marketing strategy that consciously and subtly embeds a brand or product into entertainment content such as movies and TV shows, expanding the product's visibility through exposure, to promote the consumption of the product (Karrh et al., 2003) (Russell & Belch, 2005). Eagle and Dahl's research further expands the use of product placement in various media fields such as games, novels, YouTube, Facebook, etc. (Eagle & Dahl, 2015).

Balasubramanian pointed out that product placement should appear "in a paid form", and should be paid attention to influencing the audience's perception of the product in a planned but inconspicuous way (Balasubramanian et al., 2006). There does not need to be a deliberate correlation between media content and products, and the audience may not necessarily understand that the media content they appreciate is a marketing tool. Product placement attempts to reduce the audience's resistance to the advertisement unintentionally, gradually deepening the product image into the minds of consumers (Newell et al., 2006). Neale and Corkindale's research suggested that when embedding products in media content, do not excessively increase brand exposure. Excessive exposure can cause negative emotions among consumers and reduce their consumption choices for the brand (Neale & Corkindale, 2021). As long as it can enhance the audience's favorability, it is a successful product placement advertisement (de Gregorio & Sung, 2010). Huang and Yao explicitly stated that product placement should be aimed at increasing returns and promoting marketing growth (Huang & Yao, 2017).

The American Marketing Association believes that product placement advertising must meet the following four conditions: 1) paying for media space or time; 2) Advertising information must be displayed and promoted through media dissemination; 3) Product placement materials can be specific goods, services, or abstract concepts; 4) Have an explicit advertiser or sponsor.

In general, any media content containing built-in products or brands can be

considered as product placement. Product placement aims to have an impact on consumers by incorporating information such as products, services, representative symbols, or brand images into media content.

2.3 Product Placement Effect of Brands with Different Awareness

2.3.1 Brand awareness

Brand awareness is a marketing term that refers to customers' ability to retrieve brand logos and product categories from memory (Rossiter, 2014) (Huang & Sarigöllü, 2012). Keller, the founder and initiator of international brand management, believed that the key to creating a unique brand asset lied in the concept of brand formed by customers, and the source of customers' brand concept was composed of brand image and brand awareness (Keller, 2003).

Chaudhuri and Holbrook made a clear definition of different brand awareness in their research. If consumers arouse awareness of a brand from its logo, product features or other brand information, and this arousal is natural and rapid, the brand can be treated as high-profile brand, otherwise, the brand is low-profile (Chaudhuri & Holbrook, 2001).

Some of the literatures have confirmed the influence of brand awareness in product placement on consumers' consumption choices. Chovanová et al. emphasized the brand awareness was an important factor affecting consumers' purchasing decision-making process in their research. They pointed out that high-profile brands can quickly remind consumers of information about products and influence their choices during the purchasing process. Moreover, their research also demonstrated that a suitable form of brand implantation can create a positive brand association, thus improving consumers' purchase intention of the brand (Chovanová et al., 2015).

Bergkvist and Taylor believed that brand awareness was the core of a brand, influencing consumers' reactions to brand marketing. In particular, sustainable brand awareness was believed to result from brand knowledge being embedded in consumers' deep memories. Once relevant clues appeared, the brand name would automatically appear in the mind of consumers. This was regarded as a valuable, imitable, and irreplaceable advantage, which was a manifestation of the lasting impact of the high-profile brand (Bergkvist & Taylor, 2022).

Aaker's research suggested that high-profile brands would establish corresponding emotional associations with consumers, catering to consumers' preferences from a psychological perspective, thereby continuously stimulating consumers to repeat consumption of trusted brand products (Aaker, 1996). Based on this research, Aaker proposed a brand Equity Model, that is Aaker's Brand Equity Model. The model is demonstrated in Figure 2-1.

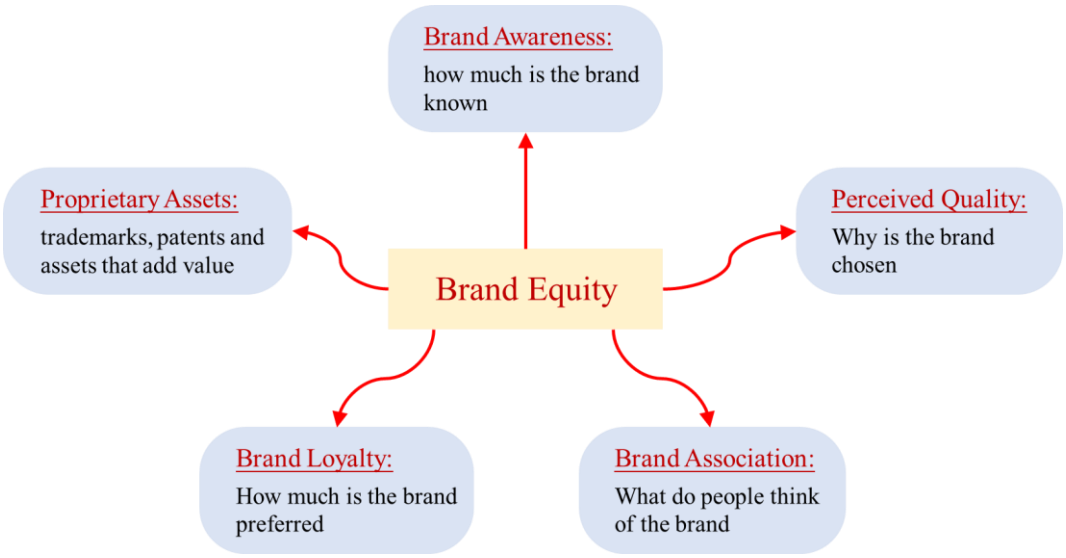


Figure 2-1 Aaker's Brand Equity Model

2.3.2 Product placement effect of high-profile brands

The product placement effect of different brand awareness is generally considered to be related to the level of cognition. A high-profile or familiar brand is regarded that consumers can effectively recall of identify the brand through its name, logo or feature (Zhang, 2020). The ability to make consumers recognize and recall the brand within a specific product category under different conditions is the typical characteristic of brand awareness (Keller, 2003).

The experimental research results of McDonnell and Drennan showed that the recall accuracy of high-profile brands was 5% higher than that of brands with low-profile in Television clips and films. The research also demonstrated that through sponsorship, public relations, implantation as well as other ways, brands can repeatedly appear in front of consumers, which in turn enhance the brand awareness (McDonnell

& Drennan, 2010). Due to the influence of brand awareness on consumers' memory of the brand, brands generally chose to increase the exposure rate, thereby continuously deepening consumers' memory, which was known as the "exposure effect". According to Hekkert et al.'s research, the definition of "exposure effect" referred to the increase in familiarity caused by repeated presentation, which leads to a positive emotional feeling from the audience towards originally neutral stimuli, and thus enhance the degree of familiarity and favorability for the brand (Hekkert et al., 2013).

Brand awareness is the pursuit of all products, and it is the precursor of brand attitude. Consumers generate brand attitudes through their evaluation of the brand and make consumption choices based on their own consumption motivations and expected abilities (Rossiter, 2014). The research conducted by Mühlbacher et al. demonstrated that consumers had a high favorable impression towards high-profile brands and prefer to purchase the products belong to high-profile brands in the same type of goods (Mühlbacher et al., 2016).

When consumers make purchasing decisions for a certain product category, familiar brands can bring them a certain sense of trust. Setyadi et al.'s research pointed out that the knowledge of the brand could directly affect consumers' purchase intention. That is, the more knowledge the consumers had with the product, the more likely it was to stimulate the consumers' interest (Setyadi et al., 2024). The research by Ebrahim et al. confirmed that consumers' familiarity with brands would enable the consumers have more brand experience. And such continuous brand experiences would cultivate consumers' brand preference, which in turn would affect consumers' willingness to purchase or repurchase the products of this brand (Ebrahim et al., 2016).

2.3.3 Product placement effect of low-profile brands

Some of the low-profile brands are new brands in the market. While others are brands that already exist, but consumers had little chance to encounter them before, thus the consumers cannot effectively retrieve them from their memory.

Zhang and Guo's research proved that when consumers first came into contact

with low-profile brand, their curiosity about the low-profile brand would stimulate them to understand this brand and generate a cognitive desire for this brand (Zhang & Guo, 2023). Rubio et al. believed that brand with low-profile would trigger consumers' perceived risks, leading to doubts about brand quality and generating negative impacts on the cognition level of the brand (Rubio et al., 2014). In Du et al.'s research, the results demonstrated that when consumers were not familiar with the brand, they will not bring consumers high expectations, which increases the advantages of low-profile brands. (Du et al., 2020).

However, Balasubramanian et al. in their research believed that product placement including low-profile brands would generate a greater effect than the high-profile brands. They pointed out that the memory of low-profile brands had not been established in the minds of consumers before watching product placement, thus the consumers' attention and memory towards the brand can be enhanced through implantation (Balasubramanian et al., 2006). Tian et al. also demonstrated similar points in their research. In addition, they also pointed out that the audience would extend their favorable impression of the character to the brand associated with the character, and change their attitude towards the brand. This situation was particular evident in low-profile brands (Tian et al., 2021). Moreover, according to Santoso et al.'s research, unfamiliar brands could attract consumers' attention and generate positive attitudes, especially in the case of low-complexity or utilitarian products (Santoso et al., 2020). And in social psychology, it has been found that familiar things lead to less favorable feelings compared to unfamiliar things (Norton et al., 2013). Therefore, in the attitude level of advertising effectiveness, the evaluation of low-profile brands is not normally worse than that of high-profile brands.

Wang et al.'s research suggested that consumer behavior was not usually singular. They believed that consumption was a symbolic representation of a certain social and economic status, and consumers met their psychological needs through consumption (Wang et al., 2023). If the product attribute was consumable product for daily life, consumers were generally more concerned about the functional level of the property in

order to solve the general life problems, without focusing on the appearance or other factors (Zhang et al., 2023). Therefore, for such products, Babin et al.'s research proved that there may not existed a difference between the impact of high-profile brands and low-profile brands on advertisement effect. And sometimes, low-profile brands may obtain between advertising effect (Babin et al., 2021).

The above research indicates that for low-profile brands, even if consumers lack prior knowledge of the brand, the corresponding product placement can still have a significant impact on consumers, which proves that the product placement of low-profile brands is effective.

2.4 Theories of Product Placement

2.4.1 Communication Persuasion Theory

All forms of advertising, in essence, are persuasive communication that uses advertising to indirectly persuade consumers to accept product information and change their previous attitude towards the product (McQuarrie & Phillips, 2005). At present, the theoretical models of persuasive communication in advertising mainly include the Elaboration Likelihood Model (ELM), the Three Routes Communication Persuasion Model, and the Persuasion Knowledge Model.

(1) Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM) was proposed by Petty and Cacioppo in the 1980s. Its core idea is to explore the persuasive pathways through which consumers change their attitudes after being stimulated by advertising information (Petty & Cacioppo, 1986). In this model, they identified two persuasive pathways for advertising:

a) Central Persuasive Pathway

The Central Persuasive Pathway emphasizes that the change in attitude is the result of the individual's careful and thorough evaluation of the relevant advertising messages. It is emphasized that consumers should receive, examine and analyze the information content in a rational way. In the process of information processing, if consumers' evaluation of advertising information is persuasive, they will change their attitude to the direction of persuasion. On the contrary, they will have adverse thoughts contrary to the message, change their attitude to the opposite direction of the message.

b) Peripheral Persuasive Pathway

The Peripheral Persuasive Pathway emphasizes that changes in consumers' attitudes towards products are not the result of careful consideration, but rather simply because the product object is associated with some positive or negative cues, or simply based on some simple cues in the information. This pathway demonstrates that

individuals process the received information in an irrational way by making simple associations based on situational factors or clues unrelated to the information content. This information is called peripheral clues. Under this information processing, consumers will not pay special attention to the content of the information, but will change their attitude according to the persuasive direction advocated by the information due to personal emotional factors. This kind of irrational thinking usually occurs when consumers have limited understanding of the brand. And at such situation, they tend to pay attention to things unrelated to the product.

In Petty and Cacioppo's Elaboration Likelihood Model, when consumers have a high understanding of product information, they generally tend to process the information through a Central Persuasive Pathway mode. At such mode, information about products through advertising can change consumers' attitudes.

In cases where consumers do not fully understand product information, they tend to use Peripheral Persuasive Pathway mode to process information, and develop a certain attitude towards the product according to the direction advocated by the information through non-information signals such as advertising spokespersons, beautiful music and touching pictures (Chang et al., 2019).

(2) Three Routes Communication Persuasion Model

The Three Routes Communication Persuasion Model was proposed by Chaiken in 1980. Its core idea is the impact of advertising on consumers' attitudes and beliefs, which can be persuaded in three different ways: Systematic Information Route, Heuristic Route, and Message Cue Route (Chaiken, 1980).

a) Systematic Information Route

The Systematic Information Route assumes that consumers are able to actively collect information and conduct pre purchase evaluations. This type of advertisement must explain the product's features or substantial benefits in order to achieve persuasive purposes. This model is similar to the persuasion theory of the Central Persuasive Pathway in Elaboration Likelihood Model, which emphasizes that consumers collect

information in a rational way.

b) Heuristic Route

The Heuristic Route assumes that consumers process information passively, and typically rely only on certain principles or clues to make decisions when they are pressed for time, inattentive, or lack the ability to evaluate. This type of consumer does not want to get the best decision, but only seeks a satisfactory solution. They believe that by doing so can save some time, energy and money. At such situation, advertisements do not need to state too much esoteric truth or argumentative information, but rather provide some simple and easy information to help understand the product or brand, in order to increase consumers' good impression of the product, or timely emerge from memory when consumers purchase products (Giombi et al., 2022).

c) Message Cue Route

Message Cue Route emphasizes that in certain situations, consumers may not go through a systematic information processing process, but instead turn to emotional systems for processing due to certain emotions, which can also change consumers' beliefs and attitudes. This mode is similar to the persuasion mode of Peripheral Persuasive Pathway in Elaboration Likelihood Model, mainly emphasizing that consumers receive and evaluate advertising information through irrational thinking, which ultimately form purchase intentions.

(3) Persuasion Knowledge Model

The Persuasion Knowledge Model was proposed by Friestad and Wright in 1994. Its core idea is to discuss how people receive information, interpret its persuasive components, and respond accordingly (Friestad & Wright, 1994). The Persuasion Knowledge Model consists two components: Conceptual Component and Assessment Component.

a) Conceptual Component

The conceptual dimension refers to the consumer's identification of the advertisement, their general knowledge and understanding of the advertisement, and in particular their knowledge and understanding of certain forms (e.g., product placement). With the passage of time, people gradually develop a personalized knowledge system about the way of sending message, the reason of sending message, and the logic behind the messages. The range of persuasive knowledge that people have is not activated for long periods, but only when they realize that the message they receive has persuasive intent.

b) Evaluation Component

The Evaluative Component refers to consumers' perceptions, consumer usually holds negative attitudes toward advertising. Thus, when people determine that the message they receive is advertiser-motivated when it contains a persuasive intent, their perception of the advertising tactic is heightened, and the persuasive knowledge that has been developed will rebel against the message. The activation of persuasive knowledge increases consumer resistion to messages, lead to lower perceived credibility, higher perceived deception, and lower behavioral intentions (Boerman et al., 2020).

Based on the Communication Persuasion Theory in advertising, for product placement, when consumers have a high level of understanding of a product, they will pay more attention to the product information of the advertisement itself. If the information is strong and powerful, consumers will form a favorable attitude towards the product (Central Persuasive Pathway or Systematic Information Route); If consumers have a relatively low understanding of a product, they may pay attention to peripheral factors of the product, such as implant content, associated roles, to decide whether to accept the content of the advertisement (Peripheral Persuasive Pathway or Message Cue Route). At the same time, excessive information transfer will cause consumers' resistance to the product. When information is not delivered directly,

consumers are likely to accept persuasion, entering into the trap of "persuasion knowledge" created by marketers through advertising information.

Thus, the theory of Communication Persuasion Theory provides theoretical support for the research on the effects of product placement in animation. In addition, the viewer's cognition of product placement will affect the consumer's attitudes and consumer's purchase behavior.

2.4.2 The Two-step Flow Communication Theory

The two-step flow communication theory was proposed by Lazasfeld during his investigation of the US presidential election in Ohio in 1940. According to this theory, a new concept or idea usually flows to opinion leaders through media channels, and then flows to a wider range of people through opinion leaders' development and interpretation. Information is sent from an information source to minority opinion leaders and disseminated through mass media. This process is called the first stage of communication. Opinion leaders disseminate information to the public through interpersonal communication, which is called the second stage of communication (Goodman & Liao, 2015). Therefore, the two-step flow communication theory holds that information goes through two stages from mass media to audience: from mass communication to opinion leaders, and then from opinion leaders to the public. Therefore, opinion leaders often represent the overall values of a certain group, and opinion leaders' attitudes towards information can affect the other audiences in their group (Weeks et al., 2015).

Based on the two-step flow communication theory, for product placement, protagonists play the role of opinion leaders. Their recommendation and dissemination of advertising information will exert cognitive and emotional impact on audiences who have no independent opinions about complicated information. When the protagonists expresses an attitude or takes some guiding actions, the audience will be guided by cognitive response and behavioral response. And protagonists can not only influence what the audience doing and thinking, but also control how the audience doing and

thinking. Protagonists can not only help enterprises build brands through their own images and characteristics but also bring huge business benefits to enterprises. Compared with the human protagonists in the advertisement, the creative use of cartoon protagonists in advertisements can bring more positive advertising effects, including the attitude towards advertising, the attitude towards brands, and the purchase intention (Heiser et al., 2008). However, the propaganda role of opinion leaders is not stable, and there may be compatibility risks between advertising information and media content. Matching advertising with media content is more conducive to the transmission of brand information , and the acquisition of consumers' interest (Gillespie et al., 2018).

Therefore, the two-step flow communication also provides theoretical support for research on the effect of product placement in animation. When the implanted product is associated with the character, the character's evaluation and awareness will affect the audience's cognition, attitude, and purchase intention towards the implanted product.

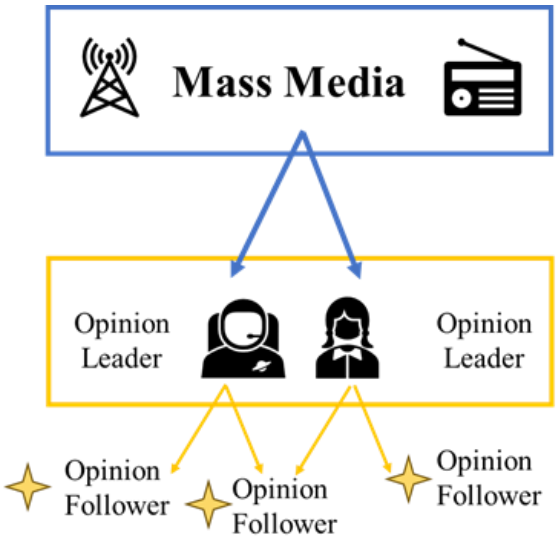


Figure 2-2 The two-step flow communication theory

2.4.3 AIDMA Model of Consumer Behavior

Attention Interest Desire Memory Action model (AIDMA model) of consumer behavior is a theory of hierarchy of effects, proposed by American advertising scientist Elmo Lewis in 1898. This model describes the whole process of consumer purchase behavior, and is a classic theory affecting consumer behavior. The AIDMA model refers

to the process of consumers from noticing advertisements to making purchasing actions. It includes five steps: A (Attention); I (Interest); D (Desire); M (Memory); A (Action).

(1) Attention

To attract attention means that consumers are affected by external stimuli and begin to pay attention to products or services. That is, through advertising, consumers are exposed to information, so consumers are stimulated by information and pay attention to products or services, which can arouse consumers' interest and promote purchase behavior (Kongmanon & Petison, 2022).

(2) Interest

To make consumers feel good about the goods or services. The use of rich expression methods, such as the combination of auditory and visual expression forms, can attract consumer interest (Russell & Stern, 2006).

(3) Desire

When consumers are stimulated by information, they will have desires. The most important factor affecting consumer desire is perceived value. Perceived value is the result of consumers' perceived evaluation of a product or service. Blut et al. pointed out that when the perceived benefit of customers exceeds the perceived cost, the consumption desire will increase (Blut et al., 2023).

(4) Memory

Consumers store product information in their memory. Auty and Lewis's research proves that consumers are more willing to buy products that they remember and recognize after viewing product placement, rather than products that are not recognized (Auty & Lewis, 2004).

(5) Action

Purchase action is the final decision of the consumer, after going through the above various stages, the consumer will make the purchase decision whether to buy the

product. Moderate repeated displays can improve the audience's memory and cognition of the brand, increase consumers' favor for the product, and stimulate the desire to purchase (Davtyan et al., 2020).

Therefore, AIDMA model can provide theoretical support for exploring the effect of product placement in animation. At the cognitive level, the product placement information in the animation needs to attract the attention of consumers; At the attitude level, consumers can take a good impression of brands through content. The entertainment of content can improve consumers' perceived value and generate desire, and the confidence of implanted product can be remembered by consumers. At the behavioral level, those processes will affect the consumption behavior.

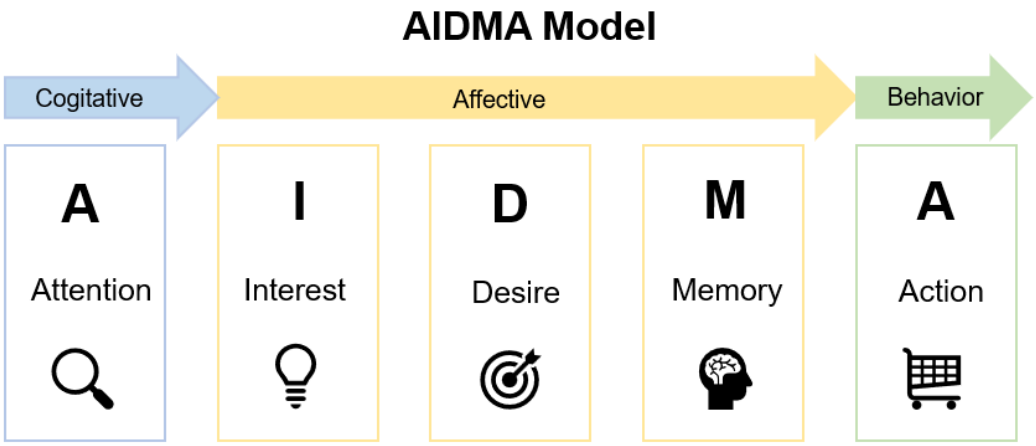


Figure 2-3 AIDMA model of consumer behavior

2.4.4 Lavidge and Steiner Six-step Theory

In 1961, Lavidge and Steiner put forward the hierarchical model of "from well-known to action", which is known as six-step theory or Lavidge and Steiner model (L&S model). It is one of the most widely cited effect evaluation models in the past 50 years. Lavidge and Steiner believe that even though it is easy to measure the effect of the advertisement based on the sales performance, the impact of advertisement on customers is a long-term process. It needs to take a series of stages for a customer to move from being uninterested in a product to being convinced to buy the product

(Lavidge & Steiner, 1961) .

Based on the six-step theory, most of the research on the effect of product placement is mainly through three aspects: cognition, affection, and conation. Because they are processes in which customers discover the existence of the product, accept the evaluation of the product, and generate the intention to purchase. Therefore, this study is based on cognition, attitude, and purchase intention to take research of the effect of product placement in animation.

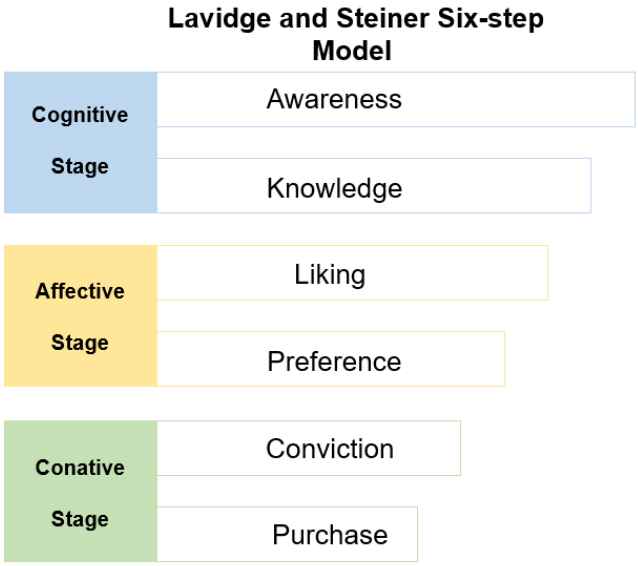


Figure 2-4 Lavidge and Steiner six-step theory model

Chapter 3 Research Methodology and Experimental Design

3.1 Research Methodology

In this study, a combination of literature research and experimental research was adopted to explore the effects of different factors on product placement effect in animation.

3.1.1 Literature Research

In this paper, the existing researches were reviewed to find out the research limitations and research gaps, so as to clarify the main and sub research objectives. Through literature review, it can be concluded that the evaluation of the effect of product placement mainly came from the audience's cognition, attitude, and purchase intention towards implanted brand (Cárdaba et al., 2022). Some researches on product placement paid attention to the influence of brand awareness on product placement effect, but it is still controversial whether high-profile brands or low-profile brands can bring better product placement effect (McDonnell & Drennan, 2010) (Vrtana, D., & Krizanova, A. 2023). In addition, some studies have also focused on the impact of product placement in different media on the effect of product placement (Sung & de Gregorio, 2008) (Sharma & Bumb, 2020). Therefore, according to the audience's cognition, attitude and purchase intention, this study focuses on the influence of different brand awareness and different animation types on the product placement effect in animations.

3.1.2 Experimental Research

To explore the effect of product placement in animation, it is mainly necessary to explore the cognition, attitude and purchase intention level of consumers. Therefore, this study decided to use a questionnaire survey method, and 5-point Likert scale was adopted to evaluate the participants' subjective ratings.

The Likert scale method is a commonly used scale measurement method, which used to measure respondents' perceptions, attitudes or behaviors towards a concept, product, or service through a series of questions (Likert, 1932). This method was first proposed by American social psychologist Rensis Likert in 1932. The Likert scale method is widely used in fields such as market research, social science research, and organizational management research.

The 5-point Likert scale divides the answers to the questionnaire into five levels. From low to high, the five ratings represent the following meanings:

1) Strong disagree: Individuals have the highest level of opposition to a certain statement, believing that the statement is far from their own views, attitudes, and behaviors.

2) Disagree: Individuals hold opposing opinions towards a certain statement.

3) Neutral: Individuals have no clear inclination towards a certain statement, neither support nor oppose it.

4) Agree: Individuals hold a supportive attitude towards a certain statement.

5) Strongly agree: Individuals have the highest level of support for a statement, believing that the statement is completely consistent with their own views, attitudes, and behaviors.

In this study, a two-stage questionnaire was designed for pre-test and post-test. 5-point Likert scale method was used in the questionnaire to make it easy for participants to understand and rate their actual cognitions, attitudes and purchase intentions. And through statistical analysis of participants' ratings, it can objectively quantify the difference between the audience's initial views and post views, so as to detect the effect of product placement in animation.

3.2 Sample Size Calculation and Data Collection

3.2.1 Sample Size Calculation

According to statistical principles, there is a certain relationship between significance level α, statistical power $(1-\beta)$, effect size ES, and sample size N. Once the above three variables are determined, the fourth variable is also determined. Therefore, the significance level α, statistical power $(1-\beta)$ and effect size ES can be used to estimate the sample size N.

Among the four variables, the significance level α refers to the probability or risk of null hypothesis H_0 being incorrectly rejected in the analysis when the original hypothesis H_0 is correct, which is also known as Type I error. In this experiment, the confidence interval was set as 95%, thus the significance level α was set to 0.05.

Statistical power $(1-\beta)$ is related to beta error probability β. The beta error probability is the probability or risk that H_0 will be incorrectly accepted in the analysis when the original hypothesis H_0 is wrong, which is also known as Type II error. In this experiment, the beta error probability β was set as 20%, where the statistical power $(1-\beta)$ was calculated as 0.8.

Effect size ES refers to the differences caused by various factors and is an indicator for measuring the magnitude of treatment effect. Unlike the significance test, the effect size is not affected by sample size. When estimating the sample size, the effect size ES is calculated using Cohen's d value, which is generally set to a value of 0.5.

Due to the complex relationship between significance level α, statistical power $(1-\beta)$, effect size ES, and sample size N, the estimation of sample size is carried out using the online analysis software "Understanding Statistical Power and Significance Test" (Magnusson, 2022). The sample size calculation results are shown in Figure 3-1. From the results, it can be seen that a minimum of 31.4 samples are required. Therefore, in this experiment, the total number of samples was 230, which meet the sample size requirements.

Figure 3-1 Sample size calculation using online analysis software (Magnusson, 2022)

3.2.2 Data Collection

In total, 127 males and 127 females were recruited for this experiment. The participants are chosen aged between 25 and 40 years old, which aimed to avoid the age interference.

Among the 254 questionnaires, 24 were invalid (damaged questionnaire, missing more than 3 questions, ambiguous answers, selecting the same answer for all questions, and conflicting answers to logical questions). Therefore, the total number of valid questionnaires was 230, and effective sample recovery rate was 93.8%. The valid questionnaires including 118 males and 112 females. In addition, all the brand were selected without gender bias, where they are suitable for both male and female. By doing so, it can avoid the gender interference to the research results.

Moreover, all the participants enjoyed the animation and its peripheral culture, who watched anime at least once a week or animated films more than once a month. Such participants meet the conditions of a pan-secondary group (iResearch, 2021). This

aimed to avoid the preference interference, and filtered out people who disliked animation.

In addition, the participants had a certain understanding of product placement, which avoid the influence of unfamiliarity with the product placement on the experimental results. In this experiment, all participants were volunteer to participate.

3.3 Experiment Procedure

3.3.1 Pilot Experiment

Before the formal experiment, pilot experiment was conducted in 2020, so as to revise the readability and completeness of the questions, test the reliability of the questionnaire, and assess the validity of each independent variable. And in total eight participants were recruited, including four males and four females. The photo for pilot experiment is shown in Figure 3-2.

Figure 3-2 Photo for pilot experiment

3.3.2 Formal Experiment

The formal experiment includes five parts: (1) Notifying Informed Consent; (2) Completing Basic Information Questionnaire; (3) Completing Pre-test Questionnaire; (4) Watching the Animation Segments; and (5) Completing Post-test Questionnaire. The detail description of each part is shown as follows.

(1) Notifying Informed Consent

Before the start of the experiment, all participants were asked to read the informed consent. In the informed consent, all participants are promised that their responses will be kept strictly confidential and used only for scientific analysis. In addition, the private information of all participants will be effectively protected and guaranteed not to be disclosed under any circumstances. The sample of informed consent is shown in Figure

3-3 and Appendix A.

After notifying the informed consent, all participants were informed about the entire experimental process and were asked to understand the corresponding meanings of the 5-point Likert scores of cognition, attitude, and purchase intention.

Informed consent

(English Translation of Chinese Original Version)

You are invited to participate in a research survey. This informed consent provides you with some information to help you decide whether to participate in this study. Please read carefully. If you have any questions, please ask the researcher.

1. This survey is to study the effect of product placement in animations on Pan-secondary group.
2. This questionnaire is used to collect the participants' cognition, attitude and purchase/use intention about the products which disclosure in the selected animations.
3. If you agree to participate in this study, you will be asked to answer the questionnaires, which consists of 2 parts, the pre-test questionnaire and post-test questionnaire. After you finish the pre-test questionnaire, you will watch the selected animations, then answer the post-test questionnaire. Please answer the questionnaire according to your subjective feelings. Your questionnaire is only used for this study.
4. Risk and discomfort: This study will not have any adverse effects on your health.
5. Benefit: Scientific analysis of your questionnaire results will help to improve the product placement in animations.
6. As a research subject, please truly express your subjective feelings and fill in the questionnaire. If you have any discomfort, please inform the researcher in time.
7. Privacy: If you decide to participate in this study, all the personal information is confidential.

Figure 3-3 Sample of informed consent

(2) Completing Basic Information Questionnaire

Firstly, the participants needed to answer a questionnaire with single choice question, so as to collect the participants' personal information, such as gender, age, viewing frequency of the animation, and level of understanding of product placement.

(3) Completing Pre-test Questionnaire

Prior to viewing animation segments, pre-test questionnaires were distributed to consumers to collect data on their initial cognition, attitude and purchase intention

towards the corresponding product or brand.

In the pre-test questionnaire, 13 brands were included. It is worth noting that in order to avoid the question options in the pre-test questionnaire would generate prompts to the participants, and avoid them pay attention to the tested brand that appeared in the animation, which will reduce the authenticity of the experiment. Therefore, three brands were added in the pre-test questionnaire as interference options.

The selected brands include various types such as food, automobile, and technology products. This is to avoid the influence of a single category on the entire result. Among all the selected brands, six high-profile and four low-profile brands were included in this research, which can better detect the impact of different brand awareness on product placement effect in animation. In addition, the animations tested in this study were selected based on high click through rates on the internet, excluding animations without product placement and animations with violent or pornographic storylines. Also, the brands tested in this study come from animations that are popular among the public, avoiding the impact of boring storylines on the effect of product placement.

The selected brands for the questionnaire are shown in Table 3-1.

Table 3-1 Selected brands for the questionnaire

No.	Brand Name	Type
1	Three Squirrels	Test Option Brands
2	Master Kong Green tea	
3	Su Ning	
4	XingXin Internet	
5	McDonald’s	
6	Pizza Hut	
7	QinQin Snack	
8	ChangAn Deepal	
9	MI	

No.	Brand Name	Type
10	Tencent	
11	Fanta	Interference Option Brands
12	OPPO	
13	BMW	

(4) Watching Animation Segments

After completing the pre-test questionnaire, the participants were asked to watch the excerpted segments of the seven selected animations.

When choosing the segments of product placement, it is important to ensure that the display features of the product placement in each segment are similar, such as similar display areas, similar exposure times, and clear display methods. This can avoid the influence of different display features on the experimental results.

In order to simulate the actual viewing experience. The length of excerpted three animated films containing tested product placements were edited into 70 minutes, nearly the same length as an actual animation. The length of excerpted four anime containing tested product placements were edited into 20 minutes, nearly the same length as an actual animation. The selected animation segments and its duration are shown in Table 3-2.

The excerpted segments were independent and complete in order to reduce the impact of incoherence. To avoid the results being influenced by the viewing order, every selected segment was played in random order.

In reality, the audience mainly watches the animation at night, especially during meals or evening breaks. Therefore, all the participants conducted the experiment in the evening with similar watching environment, such as similar light condition (bright environment), similar seat comfort (soft sofa), similar size of the screen (laptop screen) and similar film resolution (1080p).

And in order to simulate the situation where viewers usually eat meals or snacks

during actual movie watching, snacks and drinks were provided to the participants during the experiment. This can also avoid the influence of thirst and hunger on the experiment results, which can lead the participants pay special attention to food brands. However, so as to avoid the impact of the provided food generating implication on participants' feelings, the tested brand in this experiment was not included in the provided food.

Table 3-2 Selected animation segments for the experiment

Animation Type	Name of Animation	Period	Total Duration
Animated Film	*One Hundred Thousand Bad Jokes I*	20 min	70 min
	One Hundred Thousand Bad Jokes II	30 min	
	Wish Dragon	20 min	
Anime	*Dou Luo Continent I*	5 min	20 min
	Fei Ren Zai	5 min	
	The King's Avatar I	5 min	
	The Three-body Problem	5 min	

(5) Completing Post-test Questionnaire

30 minutes after watching the animation segments, post-test questionnaires were distributed to the participants to collect data on their post cognition (recall), post attitudes, and post purchase intentions towards the brand. The ten test option brands in the pre-test questionnaire were used in the post-test questionnaire.

Since the long-term impact is a complex process, influenced by different factors working together. Moreover, due to the abundance of various advertisements in real life, if the interval time is long, it is difficult to ensure that the participants are not affected by other advertisements during the period from the end of viewing animation to answering the questionnaire. Therefore, this experiment only collected data of participants 30 minutes after watching the animation segments, thus avoiding the influence of exposure to other advertisements on the experimental results.

At the same time, 30 minutes can also allow participants to take some rest, avoiding fatigue which reducing the willingness of participants to answer the questionnaire.

The flow chart for the entire experimental procedure is shown in Figure 3-4.

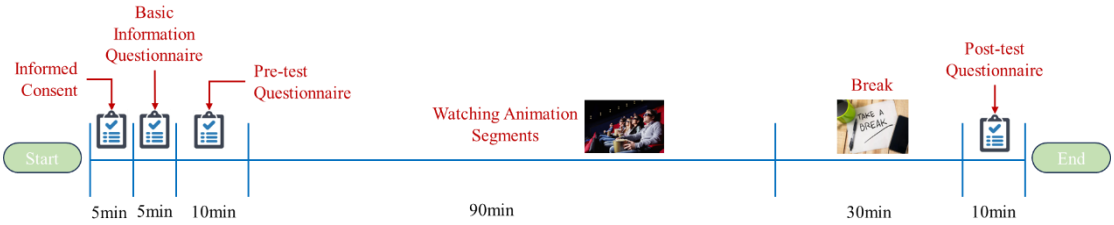


Figure 3-4 Flow chart of experimental procedure

3.3.3 Details of the Experiment

This experiment was conducted from August 2022 to July 2023. The experiment was conducted 24 times in four periods. For each experiment, it involved 8-15 participants.

The details of the experiment are shown in Table 3-3. The photo for the formal experiment is shown in Figure 3-5.

Table 3-3 Details of the experiment

Time	Place	Examinees
2022.08-2022.11	CAFTC Media Company in Beijing	Staff
2023.03-2023.05	Jilin Arts University	Master Student
2023.05-2023.07	Jilin University	Master and Doctoral student
2023.06-2023.07	CC Communication Company in Changchun	Staff

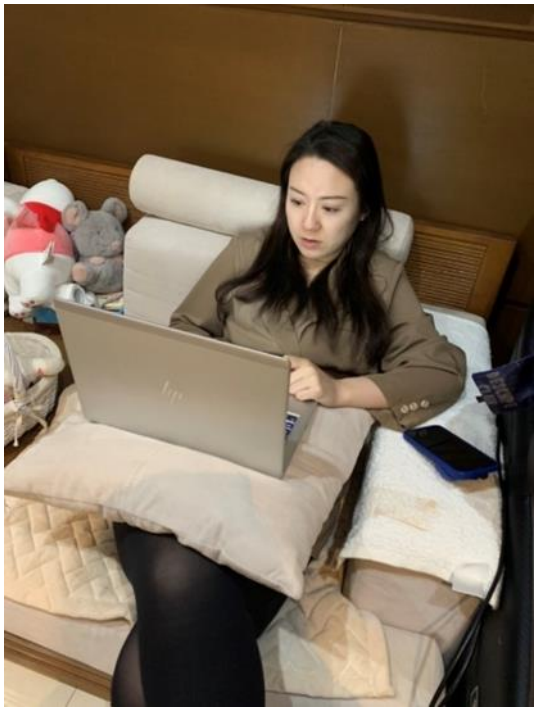


Figure 3-5 Photo for formal experiment

3.4 Data Analysis Method

3.4.1 Paired Sample T-test

The sample t-test is applicable to the comparison of paired or self-controlled data, which is reflected by differences. The difference should conform to the characteristics of normal distribution. Using zero as the base line, if there exists a significant difference between the two results, the average difference will be far from the zero line, with the significance value less than 0.05. In contrast, if the two results are almost the same, the average of the differences will be around the zero line, with the significance value larger than 0.05.

In this experiment, the paired sample t-test was used to examine the difference between the audience's pre and post cognition, attitude and purchase intention towards the implanted brand/product, in order to determine the effect of the product placement.

3.4.2 Correlation Analysis

The relationship between two variables includes deterministic relationship and non-deterministic relationship. Deterministic relationship refers to the functional relationship between two variables, where the value of one variable is known and the value of the other variable can be accurately calculated through the functional relationship. In contrast, non-deterministic relationship is one in which the two variables are macroscopically related but not precise enough to be represented by a functional relationship.

Correlation is part of non-deterministic relationship, which is defined as a non-determinate interdependence of objective phenomena. The correlation can be divided into linear and nonlinear correlations, and Pearson correlation analysis is required to analyze the linear correlation between the two variables.

In this experiment, correlation analysis was used to analyze the correlation between participants' cognition, attitude, and purchase intention towards the implanted brand after watching the selected animation segment.

3.4.3 Factor Analysis

Factor analysis is used to explore and confirm the underlying structure of variables by synthesizing several complex related variables into a few factors. The factor analysis process not only reproduces the relationship between original variables and factors, but also explores how several directly measurable and correlated measured indicators are affected by a small number of internally independent factors.

This study used factor analysis to calculate the weights of various product placement effect indicators (cognition, attitude, and purchase intention), and ultimately established a mathematical model.

3.5 Subjective Questionnaire

At present, the subjective questionnaire survey is the main method for evaluating the audiences' cognition, attitude and purchase intention towards the implanted brand. Three specially designed questionnaires were distributed to the participants, which are Basic Information Questionnaire, Pre-test Questionnaire, and Post-test Questionnaire.

Basic Information Questionnaire collect the participants' personal information, such as gender, age, viewing frequency of the animation, and level of understanding of product placement. The sample of basic information questionnaire is shown in Figure 3-6 and Appendix B.

Pre-test Questionnaire collect the audiences' cognition, attitude and purchase intention towards the implanted brand before watching the animation segments. While the Post-test Questionnaire collect the audiences' cognition, attitude and purchase intention towards the implanted brand after watching the animation segments. For both pre-test and post-test questionnaire, 5-point Likert scale was adopted, and the corresponding meaning of the five scores are listed in Table 3-4.

Because the participants were all Chinese, both the pre-test and post-test questionnaires were designed in Chinese form. The English translation version of questionnaire is shown in Figure 3-7, Appendix C and Appendix D.

The product placement in animation

Part 1

Thank you very much for being able to participate in this questionnaire! The purpose of this questionnaire is to investigate the effect of product placement in animations. All data of this questionnaire are for academic analysis only, your opinion is very important to this study, thank you for your participation.

1. Name

_____

2. Gender

○ Male

○ Female

3. Age

_____

4. Education background

○Highschool

○Higher education

○Bachelor degree

○Master degree or above

5. Profession

○ Student

○Company Stuff

○Technical staff

○ Freelancer

○Others

Figure 3-6 Sample of basic information questionnaire

The product placement in animation

Part 4: Post-test Questionnaire

How familiar (recall) are you with the following brands or products after watching the animations?

	Never heard of the brand	Heard of the brand but unfamiliar with its products	Heard of the brand but familiar with only a few of its products	Heard of the brand and familiar with some of its products	Heard of the brand and familiar with most of its products
Su Ning	○	○	○	○	○
MI	○	○	○	○	○
Tencent	○	○	○	○	○
Three Squirrels	○	○	○	○	○
Qinqin Snack	○	○	○	○	○
XingXin Internet	○	○	○	○	○
McDonald's	○	○	○	○	○
Master Kong Green Tea	○	○	○	○	○
Pizza Hut	○	○	○	○	○
ChangAn Deepal	○	○	○	○	○

Figure 3-7 Sample of post-test questionnaire

Table 3-4 Meanings of the 5-point Likert scale

	Score	Description
Cognition	1	Never heard of the brand
	2	Heard of the brand but unfamiliar with its products
	3	Heard of the brand but familiar with only a few of its products
	4	Heard of the brand and am familiar with some of its products
	5	Heard of the brand and familiar with most of its products
Attitude	1	Low favorability toward the brand
	2	Slightly low favorability toward the brand
	3	Neutral
	4	Slightly high favorability toward the brand
	5	High favorability toward the brand
Purchase Intention	1	No purchase intention whatsoever
	2	25% willingness to purchase
	3	50% willingness to purchase
	4	75% willingness to purchase
	5	100% willingness to purchase

Chapter 4 Product Placement Effect of Brands with Different Awareness in Animations

Through the comprehensive analysis of the preceding literature, it can be found that brand awareness plays an important role in influencing the effect of product placement. However, there is still controversy in the academic world about which one (high-profile brands or low-profile brands) is more likely to obtain better product placement effects.

Therefore, in this chapter, the level of brand awareness was included as a moderating variable, in order to verify the product placement effect of low-profile and high-profile brands in animation through three aspects: brand cognition, brand attitude, and purchase intention. Meanwhile, the analysis in this chapter also answered the research sub objective 1: Determine the influence mechanism of brand awareness on the product placement effect in animation.

Table 4-1 Category of high-profile and low-profile brands

Brand Awareness	Brand Name	Animation Name
High-Profile Brands	MI	*One Hundred Thousand Bad Jokes I*
	Tencent	*One Hundred Thousand Bad Jokes II*
	Three Squirrels	*One Hundred Thousand Bad Jokes II*
	Master Kong Green Tea	*Dou Luo Continent I*
	Pizza Hut	*Fei Ren Zai*
	McDonald's	*The King's Avatar I*
Low-Profile Brands	XingXin Internet	*The King's Avatar I*
	ChangAn Deepal	*The Three-body Problem*
	QinQin Snack	*Wish Dragon*
	Su Ning	*One Hundred Thousand Bad Jokes I*

For the convenience of analysis, the types of brands implanted via product placement were categorized into two groups according to the results of the initial

cognition levels of pan-secondary group in the pre-test questionnaire, i.e., high-profile brands (with an initial cognition level >= 3) and low-profile brands (with an initial cognition level < 3). Table 4-1shows the category list of high-profile and low-profile brands in this study.

4.1 The Effect of Different Brand Awareness on Consumer's Cognition

In order to analyze the impact of different brand awareness via product placement in animations on the cognition of pan-secondary group, a paired sample t-test was conducted between the data from pre-test and post-test questionnaires. The results including mean value, standard derivation (SD), t value, p value, and Cohen's d value are shown in Table 4-2 and Table 4-3.

Table 4-2 Cognition scores and paired sample t-test results for high-profile brands

Brand Name	Initial Cognition		Post Cognition		t (1379)	p (2-tail)	Cohen's d
	Mean	SD	Mean	SD			
Mi	3.67	1.11	3.57	1.36	−1.13	0.260	0.084
Tencent	4.45	0.68	4.36	0.76	−2.26	0.024*	0.120
Three Squirrels	3.40	1.38	3.67	1.34	5.64	0.000*	0.205
Master Kong Green Tea	3.78	1.15	3.87	1.06	2.66	0.008*	0.086
Pizza Hut	3.86	1.26	4.15	1.11	4.60	0.000*	0.241
McDonald's	3.89	1.17	4.01	1.23	1.33	0.184	0.101
Total	3.84	1.19	3.94	1.20	3.62	0.000*	0.083

* Significance (2-tailed) < 0.05

For high-profile brands, the results demonstrate that the mean value of participants' initial cognition was in the range from 3.396 to 4.448. This indicates that, before watching the animation segments, the participants had heard of the brand and were familiar with at least one product. After watching the animation segments, for the brands "Mi" and "Tencent", the participants' post cognition decreased slightly, by about 0.1 levels. For the other four brands, the trend was reversed, with a positive increase in post cognition of around 0.1 to 0.29 levels.

Overall, there was a small increase of 2.57% in the cognition level of the brand

after viewing the animation segments compared to the initial cognition (t (1379) = 3.62 with p = 0.000 < 0.05). The Cohen's d-value regarding the cognition of high-profile brands was 0.083, less than 0.2. This suggests that implanting high-profile brands via product placement in animations can exert a small positive effect on the audiences' cognition level.

Table 4-3 Cognition scores and paired sample t-test results for low-profile brands

Brand Name	Initial Cognition		Post Cognition		t (919)	p (2-tail)	Cohen's d
	Mean	SD	Mean	SD			
XingXin Internet	1.45	0.76	3.38	1.44	20.04	0.000*	1.675
ChangAn Deepal	1.67	0.97	3.47	1.31	18.67	0.000*	1.557
QinQin Snack	2.65	1.39	3.56	1.35	8.53	0.000*	0.660
Su Ning	2.31	1.34	2.99	1.44	5.87	0.000*	0.490
Total	2.02	1.25	3.35	1.41	24.18	0.000*	1.000

* Significance (2-tailed) < 0.05

For low-profile brands, the results show that the mean value of participants' initial cognition was in the range from 1.452 to 2.652. This means that the participants never heard of the brand or just heard of the brand but unfamiliar with its products before the viewing of the animation segments. After viewing the animation segments, participants' post cognition of all four brands increased significantly, by more than 0.68 levels. Among them, for brand "XingXin Internet" and "ChangAn Deepal", the enhancement of post cognition levels reached 1.93 and 1.80 levels, respectively.

In general, for low-profile brands, after watching the animation segments, the participants' post cognition had a great improvement, with an average improvement of 1.33 levels (t (919) = 24.18 with p = 0.000 < 0.05). And the corresponding Cohen's d value was 1.000, greater than 0.8, indicating that this positive enhancement was very significant.

The comparison reveals that for high-profile brands, the increase of participants'

post cognition (also referred as recall) after watching the animation segments was less than the increase for low-profile brands.

4.2 The Effect of Different Brand Awareness on Consumer's Attitude

In order to analyze the impact of different brand awareness in product placement on the attitudes of pan-secondary group, a paired sample t-test was conducted on the data from the pre-test and post-test questionnaires. The results are shown in Table 4-4 and Table 4-5.

Table 4-4 Attitude scores and paired sample t-test results for high-profile brands

Brand Name	Initial Attitude		Post Attitude		t (1379)	p (2-tail)	Cohen's d
	Mean	SD	Mean	SD			
Mi	3.35	1.11	3.33	1.03	−0.18	0.860	0.012
Tencent	4.03	0.96	3.56	1.14	−6.13	0.000*	0.445
Three Squirrels	3.56	1.27	3.31	1.32	−3.35	0.000*	0.188
Master Kong Green Tea	3.43	1.20	3.41	1.15	−0.25	0.799	0.019
Pizza Hut	3.77	1.24	3.68	1.16	−1.06	0.288	0.072
McDonald's	3.73	1.17	3.67	1.03	−0.78	0.432	0.055
Total	3.65	1.19	3.50	1.16	−4.64	0.000*	0.127

* Significance (2-tailed) < 0.05

For the high-profile brands, the results shows that the mean of participants' initial attitudes ranged from 3.348 to 4.030. This shows that prior to watching the animation segments, the participants showed neutral or slightly favor towards the high-profile brands. After watching the animation segments, the participants' favorable impression towards all the six high-profile brands decreased to some extent. Amont them, for the brand "Tencent" and "Three Squirrels", the decline was more pronounced, by 0.47 levels and 0.24 levels, respectively. For the other four brands, the decrease was within 0.1 levels.

Overall, participants' attitudes toward the brand decreased by 4.09% after viewing the animation segments ($t(1379) = -4.638$ with $p = 0.000 < 0.05$). The Cohen's d value for attitudes towards high-profile brands was 0.127, which is less than 0.2. This

suggests that implantation of high-profile product in animation slightly reduces the viewers' favorability towards the brands.

Table 4-5 Attitude scores and paired sample t-test results for low-profile brands

Brand Name	Initial Attitude		Post Attitude		t (919)	p (2-tail)	Cohen's d
	Mean	SD	Mean	SD			
XingXin Internet	1.75	0.97	2.51	1.24	7.78	0.000*	0.681
ChangAn Deepal	2.10	1.17	3.09	1.37	9.65	0.000*	0.774
QinQin Snack	2.61	1.27	2.85	1.28	2.54	0.011*	0.187
Su Ning	2.47	1.25	2.78	1.27	3.17	0.002*	0.245
Total	2.23	1.22	2.81	1.31	11.49	0.000*	0.553

* Significance (2-tailed) < 0.05

For the low-profile brands, the results show that the mean of participants' initial attitudes ranged from 1.752 to 2.613. This indicates that before watching the animation segments, the audience's favorable impression towards low-profile brands is relatively low due to their lack of recognition of the brand. After watching the animation, the participants' favorability towards all four brands increased significantly, by at least 0.2 levels. The post attitude scores of the brand "XingXin Internet" and "ChangAn Deepal" even increased by 0.76 and 0.99 levels respectively.

In general terms, after viewing the animation segments, participants' attitude towards low-profile brands were substantially uplifted by an average of 0.57 levels ($t(919) = 11.49$ with $p = 0.000 < 0.05$). The corresponding Cohen's d value was 0.553, greater than 0.5, indicating that this boosting effect was moderate.

The comparison reveals that for high-profile brands, participants' post attitude to product placement is decreased. However, participants' post attitude to the low-profile brands is increased.

4.3 The Effect of Different Brand Awareness on Consumer's Purchase Intention

To analyze the impact of different brand awareness in product placement on the purchase intention of pan-secondary group, the paired sample t-tests was conducted on the data from pre-test and post-test questionnaires. The results are shown in Table 4-6 and Table 4-7.

Table 4-6 Purchase intention scores and paired sample t-test results for high-profile brands

Brand Name	Initial Purchase Intention		Post Purchase Intention		t (1379)	p (2-tail)	Cohen's d
	Mean	SD	Mean	SD			
Mi	2.98	1.33	2.89	1.19	−1.00	0.315	0.072
Tencent	4.30	0.90	3.92	1.14	−4.89	0.000*	0.372
Three Squirrels	3.39	1.28	3.28	1.38	−1.49	0.136	0.085
Master Kong Green Tea	3.33	1.23	3.28	1.13	−0.56	0.576	0.037
Pizza Hut	3.80	1.20	3.64	1.14	−1.88	0.060	0.130
McDonald's	3.61	1.21	3.60	1.08	−0.21	0.832	0.015
Total	3.57	1.27	3.43	1.23	−4.01	0.000*	0.107

* Significance (2-tailed) < 0.05

For high-profile brands, the results show that the mean value of participants' initial purchase intentions ranged between 2.978 and 4.304. This indicates that before watching the animation segments, participants had a 50%~75% willingness to purchase the products of the high-profile brands. After watching the animation segment, this purchase intention declined to the range between 2.887 and 3.922, with an average decline of 0.133 levels ($t(1379) = -4.010$ with $p = 0.000 < 0.05$). For the brand "Tencent" in particular, the decline was significant, reaching 0.383 levels. For the other five brands, the decline was within 4%. Overall, the Cohen's d value of participants' purchase intention for high-profile brands before and after the animation viewing was

0.107, which is less than 0.2, meaning that this decline effect is small.

Table 4-7 Purchase intention scores and paired sample t-test results for low-profile brands

Brand Name	Initial Purchase Intention		Post Purchase Intention		t (919)	p (2-tail)	Cohen's d
	Mean	SD	Mean	SD			
XingXin Internet	1.63	0.93	2.20	1.22	6.24	0.000*	0.526
ChangAn Deepal	2.04	1.13	3.11	1.38	11.26	0.000*	0.847
QinQin Snack	2.45	1.23	2.67	1.25	2.46	0.014*	0.172
Su Ning	2.53	1.32	2.75	1.25	2.32	0.021*	0.172
Total	2.16	1.22	2.68	1.32	10.93	0.000*	0.408

* Significance (2-tailed) < 0.05

For low-profile brands, the results show that the mean value of initial purchase intention of the participants ranged between 1.635 and 2.526. This indicates that prior to watching the animation segments, the audience's purchase intention for low-profile brands was relatively low, just ranging between 25% and 50%. However, after watching the animation, there was a relatively significant increase in the participant' willingness to purchase, with an average increase of 0.518 levels ($t(919) = 10.927$ with $p = 0.000 < 0.05$). And the average value of willingness to purchase after viewing the animation reached the range of 2.204 and 3.109.

Among them, the enhancement for the brand "QinQin Snack" and "Su Ning" was relatively small, only 8.79% and 8.78% respectively. And both the corresponding Cohen's d value were 0.172, which is smaller than 0.2, indicating that the enhancement was not obvious. However, for the brand "XingXin Internet" and "ChangAn Deepal", the amount of enhancement reached 0.570 levels and 1.070 levels. The corresponding Cohen's d values were 0.526 and 0.847 respectively, which are both greater than 0.5. Even the Cohen's d value for the brand "ChangAn Deepal" is greater than 0.8, suggesting that this enhancement effect is very obvious.

4.4 Discussion

- **Cognition**

From the results, it can prove that when a low-profile brand is implanted in an animation, the audience can better receive the brand information conveyed by the product placement, which leads to an increase in brand awareness, as compared to the placement of a high-profile brand.

The findings in this chapter also show that by implanting high-profile brands into animation, participants' cognition could be improved, but the improvement was limited. This trend is similar to the findings of some previous studies. One possible explanation is that, because the audience are familiar with the high-profile brand, they can quickly recognize it when it is shown in the animation. However, because of the high recognition of the high-profile brand itself (reflected as high initial cognition in the experimental data), the magnitude of the enhancement after viewing the animation is not obvious.

Some previous studies mentioned that high-profile brands could attract viewers' attention, and when viewers were more familiar with the brand, the enhancement of cognition levels became more pronounced (Babin et al., 2021). However, the findings of this study cannot support this argument. The data in this chapter shows that compared to the initial cognition, there was a decline for the post cognition (recall) of some high-profile brands, indicating that the audience did not recall these brands.

For example, the brand "Tencent", it is implanted through the protagonist's use of "WeChat", playing "CrossFire" and "Fight the Landlord". Although these implantations are in line with the storyline, but the representation is not clear, as well as the implantation is in a single form, therefore they do not attract the audiences' attention.

The data in this chapter also demonstrates that the exposure of low-profile brands via product placement in animations could increase the audiences' cognition levels.

This is due to the fact that many audiences are not familiar with the low-profile brand, resulting in low initial cognition scores. However, when the low-profile brand is implanted in the animation and the animated interpretation is used to attract the audience's attention, the audience therefore has an impression of the implanted low-profile brand, increasing their memory points, which incredibly improves the level of cognition.

And the low-profile brands that appear in the animation are not all ordinary consumer products, such as the brand “ChangAn Deepal” in animation *The Three-body Problem*. “ChangAn Deepal” is a brand of electric car launched by ChangAn Automobile Group, which has been on the market for just two years. In animation *The Three-Body Problem*, every time the protagonist travels, he drives the car of brand “ChangAn Deepal”. And during the driving process, there are clear close-ups of the brand logo, which makes the audience not only recognize the brand, but also understand the usage of the its products. At the same time, the storyline of the animation *The Three-body Problem* is full of high technology, which is in line with the characteristics of the brand “ChangAn Deepal”.

This indicates that for low-profile brands, inserting them into an animation that matches the theme, using plot implantation and appropriate frequency of exposure can significantly attract more attention from the audience.

In terms of display features, high-profile brand “Tencent” is basically the same as low-profile brands ChangAn Deepal, the appearing area is 1/2 of the screen with a clear logo or product and appears times are the same. Tencent also utilized the special implantation form of dialogue. But there is less significant difference in display features, but the audience's cognition of the brand is different.

Low-profile brands have gained more attention through product placement in animation, which is closely related to the integration of low-profile brands with the plot, in line with the theory of the Elaboration Likelihood Model. For low-profile brands, when consumers are not familiar with the product, they cannot obtain the product

information directly. However, the consumer will rather understand the product through edge information such as the integration of the product with the plot or the interaction of the protagonist. For high-profile brands, the audience directly obtains information and lacks the process of understanding and analysis. It is worth noting that it is this process of analysis and understanding that leaves a deeper impression on the audience.

- **Attitude**

For regarding attitude, implanting a high-profile brand in an animation caused a certain decrease in viewers' favorability. This is because of the limited capacity available for product placement in animation. When the audience notices the brand logo of a high-profile brand in a prominent position in animation, they immediately associate it with the imminent appearance of product placement, which can create a "disturbing the plot" phenomenon. This is in line with Sabour et al.'s findings that viewers' favorability decreased for advertisements that disrupted the storyline (Sabour et al., 2015). Simultaneously, inappropriate implantation form, low integration with the plot, and mismatch with the theme will decline the quality of product placement, causing aversion to the product and reducing favorability to the brand.

For example, the high-profile brand "McDonald's" in the animation *The King's Avatar I*, the protagonist's daily food is all from McDonald's. And logo of McDonald's is added to the background. However, the displayed content is the protagonist reading the document, and the background implantation is not coordinated with the displayed content. At the same time, the protagonist's gaze at the McDonald's cone implantation also appears too deliberate. Such excessive disclosure disrupts the storyline, which makes the audience have a negative impression towards the brand, thus the post attitude decline.

For low-profile brands, they are unlikely to be recognized by the audience, which in turn is unlikely to cause dissatisfaction among the audience. Even if low-profile brands appear as background, they are integrated into the content. This kind of implantation will not disrupt the audience's viewing experience, thus making them more

tolerant of the emergence of low-profile brands. Meanwhile, the humorous and lighthearted content in the animation extends the audience's positive impression of the content to a low-profile brand that does not disrupt the plot.

The low-profile brand “XingXin Internet” in *The King's Avatar I*. XingXin Internet is an internet cafe. In the animation, the protagonist enters this internet cafe every time to play computer games, so the brand name appears multiple times in the audience's view. Although it is only a simple background implantation, it still arouses the audience’s interest in it.

In terms of display features, the high-profile brand “McDonald’s” is the same as low-profile brand “Xinxin”, the appearing area is less than 1/2 of the screen with a clear logo or product, and appears times are the same. There is less significant difference in display features, but the audience's attitude toward the brand is different.

Low-profile brands have gained the audience's favor through the implantation in animation. Although, the low-profile brand and the high-profile brand all use the background implantation, both low-profile and high-profile brands all display clear logos. However, the low-profile brands are closer to integration with content, making the audience unknowingly learn about this brand and develop an interest and goodwill towards it.

For high-profile product placement, it is easy to activate persuasive knowledge, stimulate the audience's resistance to advertising information, and believe that the appearance of advertisements destroys the plot. Therefore, when implanting high-profile brands, special attention should be paid to combining with the content to gain the audience's favor.

- **Purchase Intention**

In terms of purchase intention, participants’ willingness to buy high-profile brands decreased after viewing the animation than their initial intention to purchase. However, the decline of brand “MI”, “Three Squirrels”, and “McDonald’s” as daily necessities

was not obvious (< 0.1). This is because consumers' consumption of daily necessities is less influenced by advertising. Meanwhile, the research of Febriyantoro and Wright proved that there existed a correlation between audiences' attitude levels and purchase intention (Febriyantoro & Wright, 2006). Therefore, the audience's negative attitude towards the appearance of high-profile brands in product placement will directly affect their willingness to purchase the products from the high-profile brands.

Nevertheless, due to the popularity of high-profile brands, consumer preferences and purchase intentions are relatively fixed (Moisescu, 2009). Therefore, the negative effects of the inappropriate placement of products made by high-profile brands in a single animation are relatively limited.

For example, as the high-profile brand Master Kong's Green Tea is a product with a strong sense of reality and modernity, and it is only as a decoration, it is obtrusively placed on the table and has no interaction with the protagonist. It makes the audience feel very unreasonable by implanting a product with a strong sense, thus negatively affecting the dissemination quality of the product placement and the audience's feeling towards the animation.

For low-profile brands, the audience's post purchase intention has increased to some extent after watching the animation. One possible explanation is that audiences are curious about low-profile brands (Karpinska-Krakowiak, 2021). As long as the implantation method of a low-profile brand does not excessively interfere with the plot, the audience will consider it a part of the plot and have a high tolerance for it.

Another possible explanation is the phenomenon of "perceived risk". Dowling introduced the concept of perceived risk, which refers to the psychological state of watching and being cautious when consumers confronted with unfamiliar brands (Dowling, 1986). Schmidt and Bijmolt also pointed out in their study that small perceived risks lead consumers to have a more positive willingness to consume (Schmidt & Bijmolt, 2019). In the case of low-profile brands, viewers are not familiar with them, thus they are easily influenced by the information transmitted through

animation and hold some freshness to the brand. In such situation, the audience is in the level of low perceived risk, which has led to a certain increase in post purchase intention.

For example, the brand “QinQin Snack” in animation *Wish Dragon*. The protagonist dragon eats the products from the brand “QinQin Snack” many times in the animation, and says the line “QinQin Snack is delicious” with an exaggerated and funny expression at the same time. Through this approach, there is an intimate interaction with the product, which creates a positive attitude towards the brand “QinQin Snack” among the audience and significantly increases their willingness to purchase.

In terms of display features, the high-profile brand “Master Kong Green Tea” is basically the same as low-profile brand “Qinqin”, the appearing area is less than 1/2 of the screen with a clear logo or product and appears the same times. There is less significant difference in display features, but the audience's purchase intention of the brand is different.

Moreover, most of the low-profile brands appearing in the product placement are relatively new brand, and the audience recognizes the brand for the first time through the animation. The interaction between the brand and the protagonist in the animation can help the audience hold a positive attitude towards the brand, and this protagonist is equivalent to an Opinion Leader in the Two-Level Communication Theory. The attitude of the opinion leader towards embedding the brand can directly affect the audience and enhance audiences’ purchase intention.

It is worth noting that, in general, consumers tend to choose familiar brands in their consumption choices, making it easier for high-profile brands to be purchased by consumers (Vrtana & Krizanova, 2023). Moreover, the low-profile brands selected in this study are brands that are relatively new or less common on the market, which should have made it less likely for consumers to develop a greater willingness to consume. However, because the audience of animation is different from that of other media. They do not blindly follow the high-profile brand, and are relatively more

receptive to brands and products they have never heard of. In addition, they are more concerned about the compatibility between implanted products and content. Therefore, they have pure and true judgment on the effect of product placement and are not easily affected by the high or low brand awareness.

- **Overall Trend**

Overall, in terms of the effect of product placement in the animation, there was a significant improvement in the cognition, attitude, and purchase intention levels of low-profile brands in the post-test questionnaire (Figure 4-2). In contrast, for high-profile brands, only the cognition level in the post-test questionnaire increased slightly, while the remaining two indicators (attitude and purchase intention) declined to varying degrees (Figure 4-1). This proves that the implantation of low-profile brands in animation is more effective than that of high-profile brands, which provides the answer to the research sub objective 1.

It is also found that for low-profile brand, the initial cognition level was less than initial attitude level, which is strange. A plausible explanation for this is the phenomenon of “Qiafan” in animation. “Qiafan” is a Chinese Internet term originally from the dialect of southwest China, meaning to eat. Because eating means survival, it later refers to a series of behaviors taken in order to make a living. When used in animation, the phenomenon of “Qiafan” means that the audience understands that the production cost of animation is huge, and therefore is more tolerant of the producer’s efforts to recoup money by inserting advertisements into the animation. Therefore, even though the audience do not recognize the brands, there is still a minimum attitude rating threshold for brands implanted, which caused this abnormal trend.

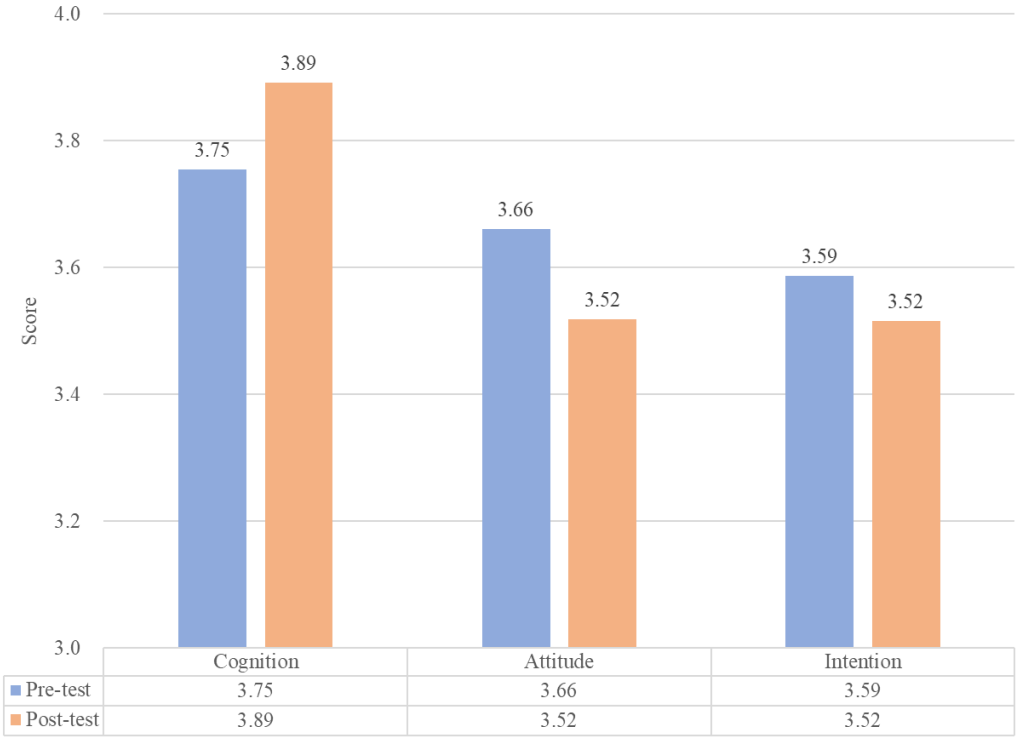


Figure 4-1 Product placement effect for high-profile brands

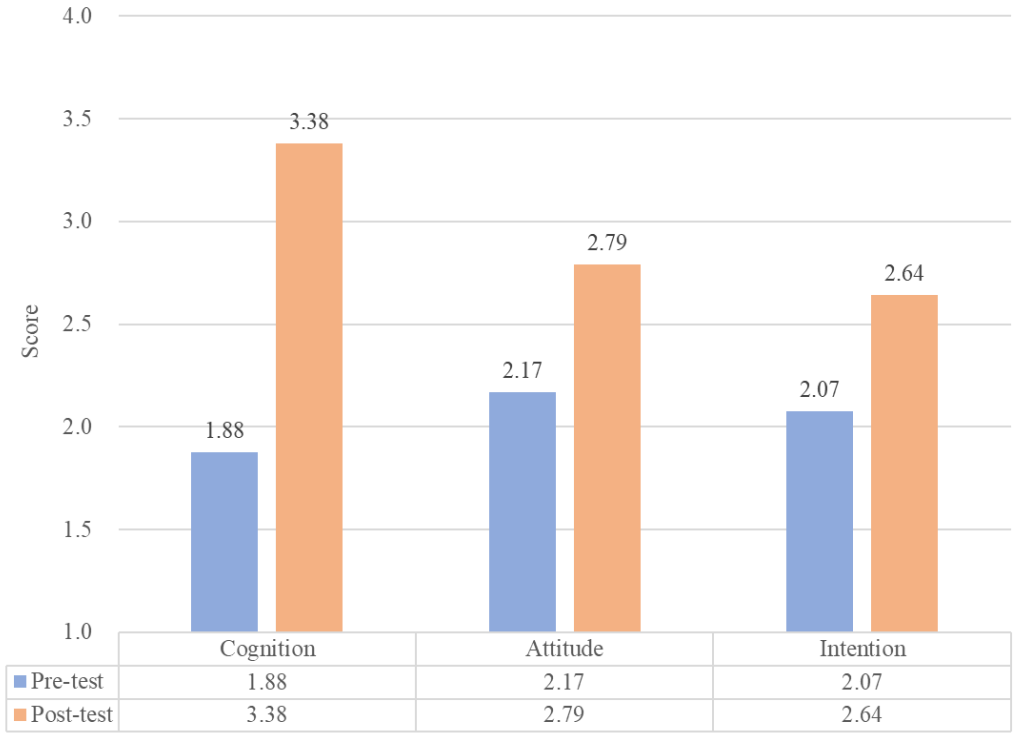


Figure 4-2 Product placement effect for low-profile brands

Further, for both the pre-test and post-test results, the participants' post-cognition scores were higher than their post-attitude scores, and the post-attitude scores were

higher than the post-purchase intention scores (Figure 4-3). This is in line with the research on purchasing behavior in marketing (Kim & Littrell, 2001). When consumers want to buy products, they first form a general attitude toward them, conduct an overall evaluation of their favorability and acceptance, and generate their final post-purchase intention based on the evaluation of risks and benefits.

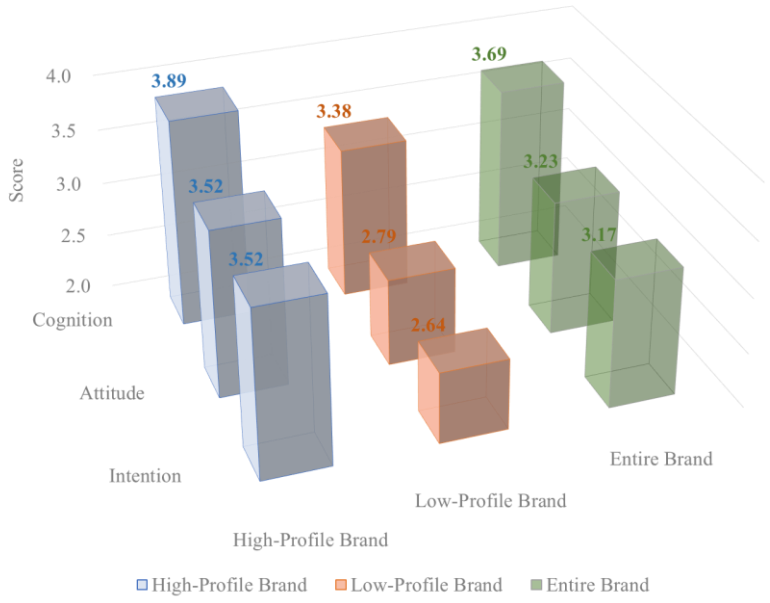


Figure 4-3 Product placement effect of post-test for the entire brands

This study suggests that advertisers and animation producers should insert appropriate brands based on the theme of the animation. Since for high-profile brands, the audience is very familiar with their brand usage, pricing and other information, therefore the purchase intention of such brands is relatively certain (Setyadi et al., 2024). Therefore, although low-profile brands have achieved better product placement effect in animations in this study, it does not mean that high-profile brands are not suitable for product placement in animation, just need to pay more attention to the method of implantation.

We also suggest that low-profile brands should prioritize animation as a media channel to promote their brands or products, because animation can make the brand quickly recognized by the audience, and the audience can gain a good impression of the brand through the product placement in the animation, and eventually improve their

purchase intention for the brand.

Chapter 5 Product Placement Effect of different types of Animations

According to indicators such as broadcast duration, release platform, and production cycle, animations can be divided into two categories: animated films and anime. Among them, animated films generally have a broadcast duration of over 90 minutes, and are mainly released at movie theaters. In addition, the production cycle for an animated film is relative long, with an average of around one year. As for anime, the typical broadcast period is around 10 ~ 30 minutes, and the main broadcast platform is television or online platforms such as YouTube. The average production cycle for anime is quite shorter than that for animated film, with about only one week to one month per episode. The detail comparison is shown in Table 5-1.

Table 5-1 Detail comparison between anime and animated film

	Anime	**Animated Film**
Audience	Pan-secondary Group	All-age Group
Viewing Environment	Online Platform	Theater + Online Platform
Payment Form	Monthly, Quarterly, Annual Payment for Online Platform	Single Film Pruchase in Theater or Online Platform
Broadcast Duration	Around 20 min	60 ~ 90 min
Broadcast Cycle	Season Broadcast	Single Broadcast
Production Mode	Broadcast after Producing + Broadcast while Producing	Broadcast after Producing
Theme	Diversity forms Rich themes	Limited themes Comply with Broadcasting Standards

Although animated film and anime belong to animation, they can be regarded as different types due to significant differences in broadcast duration, release platform, and production cycles. And according to the results of the literature review, it can be found that in different types of media (such as movie, television program, online

platform), the effect of product placement is quite different. Therefore, it is reasonable to propose a hypothesis that there exists a difference in the effect of product placement between animated film and anime. In addition, which type of animation will have better product placement effect also needs to be discussed in detail.

Therefore, in this chapter, the type of animation was served as a moderating variable, and the effects of product placement in animated films and anime were derived from three aspects: cognition, attitude, and purchase intention. In addition, the comparison between product placement effect in animated film and anime were also conducted. Moreover, the analysis results of this chapter can also be used to answer research sub objective 2.

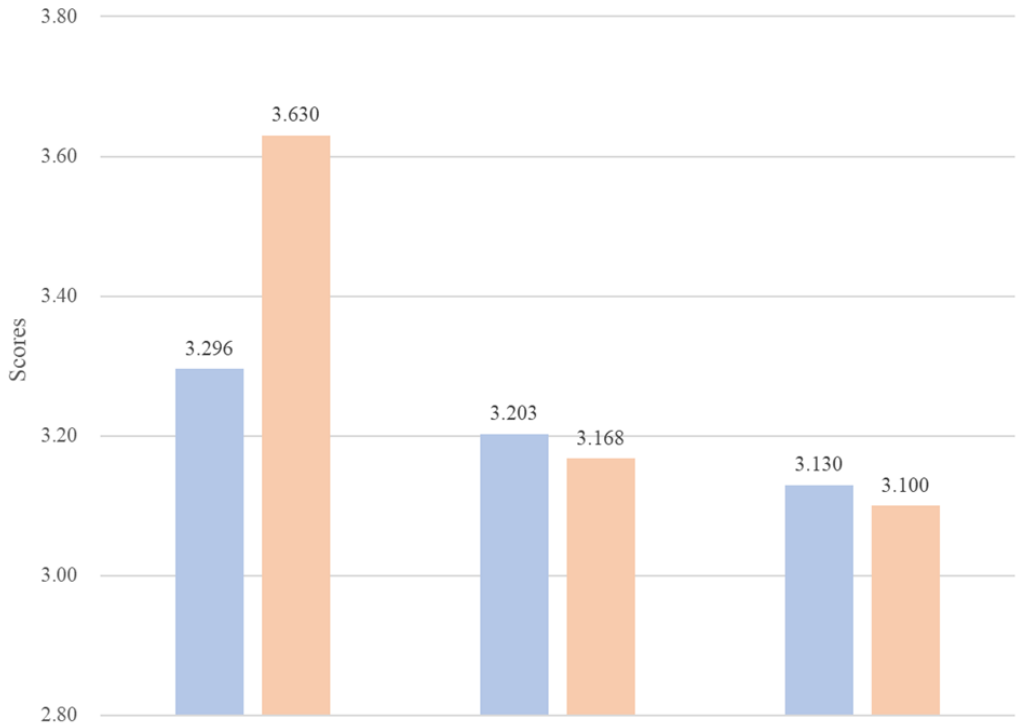
Table 5-2 Category of brands in different types of animation

Animation Type	Animation Name	Brand Name
Animated Film	*One Hundred Thousand Bad Jokes I*	MI
		Su Ning
	One Hundred Thousand Bad Jokes II	Tencent
		Three Squirrels
	Wish Dragon	QinQin Snack
Anime	*The King's Avatar I*	XingXin Internet
		McDonald's
	Dou Luo Continent I	Master Kong Green Tea
	Fei Ren Zai	Pizza Hut
	The Three-body Problem	ChangAn Deepal

In order to facilitate the analysis, the brands studied in this research were divided into two groups according to the type of animation, namely the animated film analysis group and the anime analysis group. The specific categories are shown in the Table 5-2.

5.1 The Effect of Product Placement in Animated Film

In order to analyze the effect of product placement in animated film, the data of brands from the animated film analysis group were selected. And paired sample t-test was conducted on the three indicators (cognition, attitude and purchase intention). The relevant results are shown in Figure 5-1.



	Cognition	Attitude	Purchase/use Intention
Pre-test Data	3.296 ± 1.429	3.203 ± 1.320	3.130 ± 1.400
Post-test Data	3.630 ± 1.351	3.168 ± 1.252	3.100 ± 1.331
Difference	0.335	-0.036	-0.030
t (1150)	8.295	-0.930	-0.782
p (2-tailed)	0.000*	0.353	0.434
Cohen's d	0.241	0.028	0.022

* Significance (2-tailed) < 0.05

Figure 5-1 Paired sample t-test results for brands in animated films

The results show that for the animated film analysis group, before watching the movie, the average cognition level of the implanted brand among the participants was 3.296 (standard deviation = 1.429), the average attitude level was 3.203 (standard deviation = 1.320), and the average purchase intention level was 3.130 (standard

deviation = 1.331).

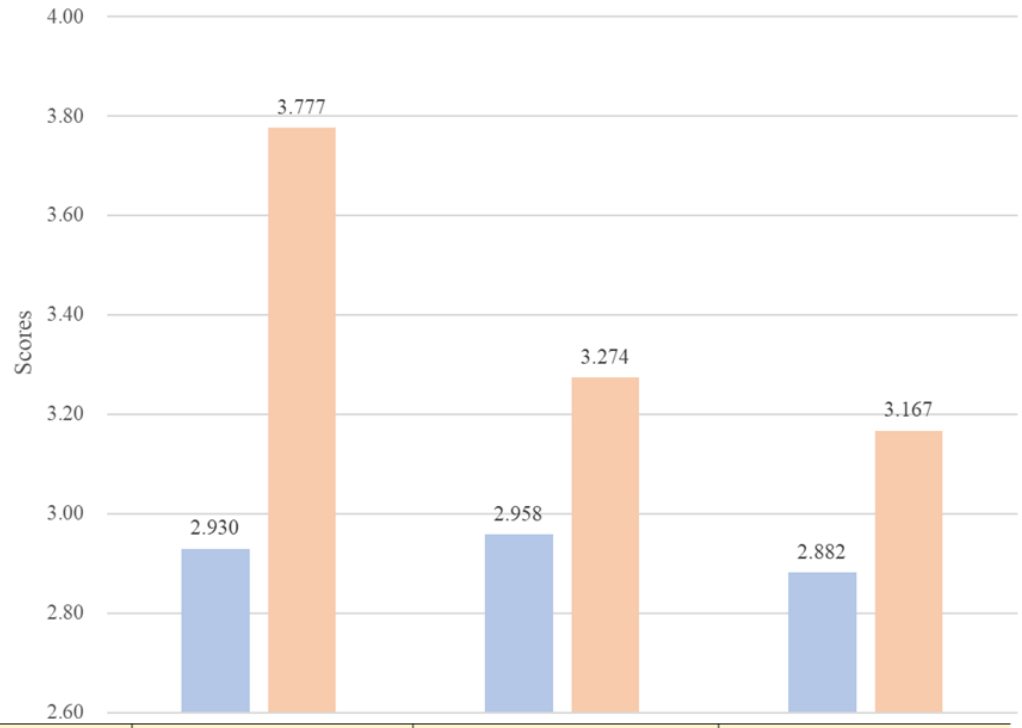
After watching the animation segments, the participants' average cognition level (recall) improved by 0.335 levels, reaching 3.630, with a standard deviation of 1.351. By conducting a paired t-test on the pre-test and post-test data of cognition, it was found that the significance value in the t-test was 0.000, less than 0.01, indicating that the participants' post cognition level had a significant improvement under 99% confidence level. But Cohen's d value was 0.241, which is between 0.2 and 0.4, reflecting the magnitude of this improvement was relatively small. This indicates that most of the implanted brands/products that appear in animated films are able to be recognized and remembered by the audience.

For the indicator of attitude, the average attitude level of the participants after watching the animation segments was 3.168, and the standard deviation was 1.252. Compared with data before viewing the animation segments, the average decrease was 0.036 levels. The significance value in the paired t-test was 0.353, greater than 0.05, indicating that this decrease was not statistically significant. In other words, product placement in animated films had little effect on participants' attitudes.

As for purchase intention level, the mean value of post-test data was 3.100 (standard deviation = 1.331), which was 0.030 levels lower than the mean value of pre-test data. The significance value of the paired t-test was 0.434, also greater than 0.05, indicating that product placement in animated films had minimal impact on audiences' purchase intention level.

5.2 The Effect of Product Placement in Anime

Similar to the analysis in the previous section, data from the brands in the anime analysis group were selected to conduct paired t-tests on the three indicators: cognition, attitude, and purchase intention, in order to obtain the effect of product placement in anime. The relevant results are presented in Figure 5-2.



	Cognition	Attitude	Purchase/use Intention
Pre-test Data	2.930 ± 1.557	2.958 ± 1.440	2.882 ± 1.443
Post-test Data	3.777 ± 1.276	3.274 ± 1.275	3.167 ± 1.307
Difference	0.846	0.316	0.285
t (1150)	19.484	7.475	7.015
p (2-tailed)	0.000*	0.000*	0.000*
Cohen's d	0.594	0.232	0.207

* Significance (2-tailed) < 0.05

Figure 5-2 Paired sample t-test results for brands in anime

The results show that for the pre-test questionnaire data, the average cognition level of the participants was 2.930, with a standard deviation of 1.557; the average attitude level was 2.958, with a standard deviation of 1.440; and the average purchase intention level was 2.882, with a standard deviation of 1.443.

As for the indicator of cognition, the average value of audiences' cognition levels had significantly increased after watching the animation segments, with an average increase of 0.846 levels. The increased cognition level reached 3.777, with standard deviation of 1.276. The significance value of paired t-test was 0.000, which is less than 0.01. This indicated that the increase was statistically significant within 99% confidence interval. In addition, the Cohen's d value was 0.596, which is in the region of 0.5 to 0.8, indicating that the magnitude of this increase is relatively large. From the results above, it can be concluded that the audience can recognize and recall the implanted brands/products that appear in the anime.

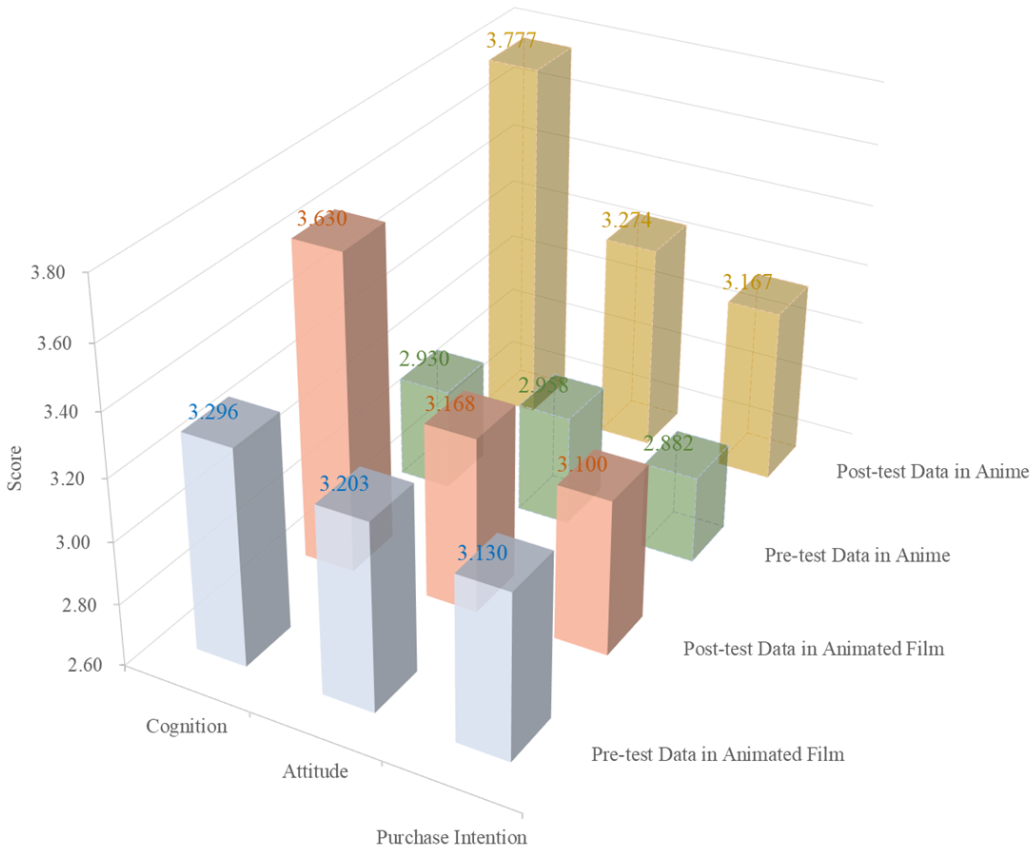
As for the attitude level, the average favorability of the participants after watching the anime was 3.274, with a standard deviation of 1.275. Compared with the pre-test data, the average level was improved by 0.316. The significance value in the paired t-test was 0.000, which is less than 0.01, indicating that this improvement was statistically significant. The results also indicated that by embedding the brand into anime, the audiences' favorable attitude for the brand can be further deepened. But the corresponding Cohen's d value was 0.232, just between 0.2 and 0.5, indicating that this deepening amplitude was relatively small.

For the indicator of purchase intention, the average value of participants' post-test data was 2.882 (standard deviation of 1.443), which was improved compared with the pre-test data by 0.285 levels. The significance value in the corresponding paired t-test was 0.000, which is less than 0.01, indicating that this difference in elevation was statistically reliable. Similar to the attitude section, the corresponding Cohen's d value was 0.207, between 0.2 and 0.5, indicating that the product placement in anime would slightly improve the audiences' purchase intention.

5.3 Discussion

➢ Comparation between Product Placement Effect in Animated Film and Anime

Figure 5-3 demonstrates the tendency for pre-test and post-test data in different animation groups.



	Cognition	Attitude	Purchase/use Intention
Pre-test Data in Animated Film	3.296 ± 1.429	3.203 ± 1.320	3.130 ± 1.400
Post-test Data in Animated Film	3.630 ± 1.351	3.168 ± 1.252	3.100 ± 1.331
Pre-test Data in Anime	2.930 ± 1.557	2.958 ± 1.440	2.882 ± 1.443
Post-test Data in Anime	3.777 ± 1.276	3.274 ± 1.275	3.167 ± 1.307

Figure 5-3 Trendline for pre-test and post-test data in different animation groups

For both the animated film analysis group and anime analysis group, the participants' post cognition scores were higher than their post attitude scores, and further higher and their purchase intention scores. This is consistent with purchasing

behavior in marketing (Kim & Littrel, 2001).

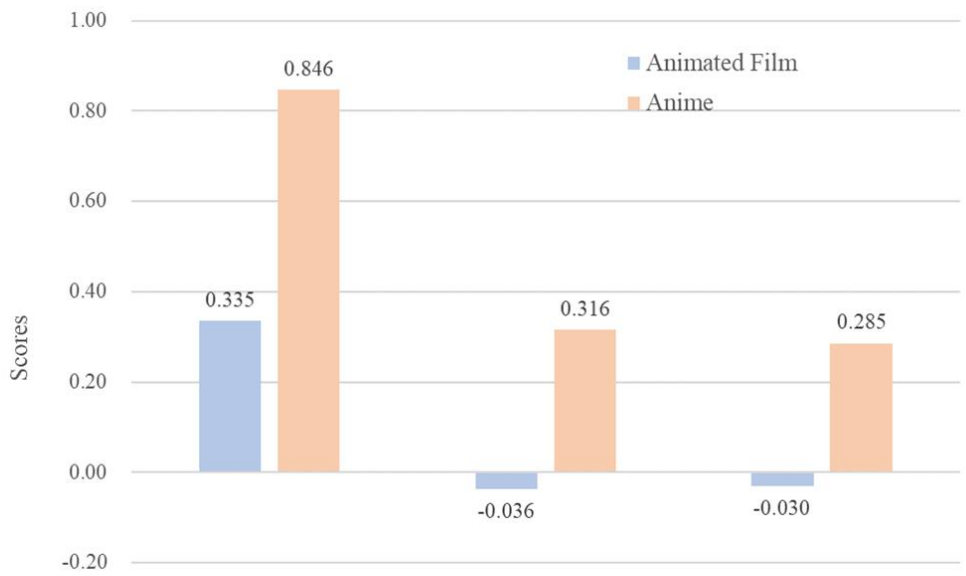
For a product, before consumers make a purchase decision, they need to have a certain level of knowledge of the product. After familiar with the product, some of them find that the external evaluation of the product is relatively good, and the product meets their needs in certain functions, thus generating a certain degree of favorable impression. Due to the fact that purchasing decisions are often triggered by emotions, among these consumers who generate favorable impression, some will choose products that meet their needs and desires. This explains why the scores of cognition, attitude and purchase intention show a downward trend, as well as explains why the downward trend between attitude and purchase intention becomes flat.

As for the data of the pre-test questionnaire, cognition, attitude and purchase intention in the animated film group, it also showed a similar downward trend as that of the post-test data. However, for the anime analysis group, when we analyzed the data from pre-test questionnaire, it is found that the cognition level was slightly smaller than the attitude level, but both were greater than the purchase intention.

It is also found that a portion of the audience chose “one” for initial cognition, but chose an option greater than “one” for initial attitude. That is, some participants had a certain degree of favorability for the brand even though they never heard of the brand. A plausible explanation for this is the phenomenon of “Qiafan” in animation. “Qiafan” is a Chinese Internet term originally from the dialect of southwest China, meaning to eat. Because eating means survival, it later refers to a series of behaviors taken in order to make a living. When used in animation, the phenomenon of “Qiafan” means that the audience understands that the production cost of animation is huge, and therefore is more tolerant of the producer’s efforts to recoup money by inserting advertisements into the animation. Therefore, in practice, the audience will have a non-zero favorability threshold for all brands embedded in animation.

The differences of participants’ cognition, attitude and purchase intention level between pre-test and post-test data in different animation groups are shown in Figure

5-4.



	Cognition Difference (Post – Pre)	Attitude Difference (Post – Pre)	Purchase/use Intention Difference (Post – Pre)
Animated Film	t (1150) = 0.335 p (2-tailed) = 0.000*	t (1150) = -0.036 p (2-tailed) = 0.353	t (1150) = -0.030 p (2-tailed) = 0.434
Anime	t (1150) = 0.846 p (2-tailed) = 0.000*	t (1150) = 0.316 p (2-tailed) = 0.000*	t (1150) = 0.285 p (2-tailed) = 0.000*

* Significance (2-tailed) < 0.05

Figure 5-4 Difference between pre-test and post-test data in different animation groups

On the cognitive level, the audiences' brand cognition (recall) after watching animated films has improved to a certain extent, but this improvement is less than that of anime. This indicates that the brands that appear in anime are more able to attract the audiences' attention. This is because anime has the characteristics of continuity, through implanting product placement in different episodes, the audience can receive information about the product multiple times. Such constant disclosure has a positive impact on brand memory, thereby increasing audience cognition level towards the brand (Mandolfo et al., 2022).

However, animated films can be treated as single series, usually with a tight storyline. Thus, the implantation of brand in anime is usually single implantation, lacking repetition, and adhesion of implanted brand is also relatively low. Therefore,

even if the brand appearing in the animated film can be recognized by the audience, it still cannot generate the same level of audience recall as the implanted brands appearing in anime.

In terms of attitude, the audiences' favorability towards the brand decreased after watching animated films, but for the brand in anime, the audience's favorability has increased. Meanwhile, in terms of purchase intention, the audiences' intention to purchase the brands have slightly decreased after watching animated films, but their purchase intention towards the brands showing in anime has increased to some extent. This indicates that implanting brand in anime can better obtain the favorable attitude from audience, as well as better improving the audiences' consumption willingness.

- **Possible Reasons**

The possible reasons are shown as follows.

(1) Differences in payment forms

Anime is broadcast through online platforms. When the audience wants to watch an anime, they can choose to pay only for this anime, or pay the monthly, quarterly or annual fee for the platform. However, paying only for one anime is relatively expensive. If the audience wants to watch an anime with 12 episodes, he needs to pay around 50 yuan. By contrast, the annual fee for the platform like bilibili or iQIYI is around 150 yuan, and the audience can watch all the anime on that platform. Currently, there are a large number of anime available on the platform. For example, bilibili, the largest animation online platform in China, has launched 106 original Chinese anime in year 2020. In total, there are 627 Chinese anime, 2940 Japanese anime, and 70 American anime available on bilibili by year 2021 (bilibili, 2023). Due to the fact that audiences can watch all the anime on the platform at a very low annual fee, there is a high level of inclusivity towards anime. And sufficient funding can promote timely updates of the anime series, thus audiences can understand that the anime producer needs to implant advertisements to solve the problem of high animation production costs.

As for the animated film, it is usually broadcast through theater. The audience needs to buy the ticket particularly for this animated film, and the average fee for the viewing ticket is around 60 yuan. Even if the animated film is taken offline from the theater and broadcast through the online platform, viewers still need to purchase this animated film on the platform if they want to watch it. Because the audience thinks that they have already paid for that animated film, if there are product placements in the animated film, the audience will consider it a waste of their time and money. Therefore, the tolerance of audience towards the product placement in animated film is relatively low.

(2) Differences in viewing environments

For anime, viewers can watch them on their phones at any time. And each episode of anime is about 20 minutes, which is relatively short. This entertainment experience that briefly disconnects the audience from real life enhances their perception and acceptance of implanted brand information, and generates a positive attitude towards implanted brands (Stephen et al., 2021).

As for animated films, the broadcast duration generally lasts for 70 ~ 80 minutes. If the audience want to watch it, they need to deliberately allocate a complete period of time. For animated films that are only played in cinemas, viewers also need to go to the cinema to watch it according to the cinema playback time, which can cause some inconvenience. Therefore, if product placement appears in an animated film, it will disrupt the coherent plot to some extent, reduce the viewing experience, and trigger the audiences' resistance to the implanted brand.

(3) Differences in implantation integration degrees

Anime as a creative and expressive art form, has a wide range of themes covering multiple subjects. This diversity not only enriches the content of anime but also provides a broad space for brand implantation. In this study, the product placement categories such as food, high-tech, and automobiles were covered. The category of product placement in animation is limited and single, the food category appears

frequently.

For example, the brand “XingXin Internet” in the anime *The King's Avatar I.* The anime is a real &fantasy animation theme related to esports games, compatibility between Internet companies and esports games is relatively high, thus the implantation is not abrupt.

The anime *Fei Ren Zai* is comedy animation theme. The comedy theme is loved by audiences for its humorous and cheerful atmosphere. This type of anime is suitable for collaboration with relaxed and enjoyable brands such as fast food, beverages, and entertainment. By incorporating humorous plotlines or character interactions in anime, brand knowledge is naturally incorporated, allowing the audience to remember these brands through laughter. Therefore, the implantation of Pizza Hut snacks is appropriate.

However, the themes of animated films are not as diverse as anime. Due to higher production costs, the themes of animated films are relatively singular and universal, aimed at attracting a wide audience to achieve box office and click through rates. The technology category appears in animation frequently, the technology brands often have sufficient funds. Through implantation, animated films can fill a part of the production budget. However, this often leads to a low degree of integration between the implanted brand and the storyline, resulting in unsatisfactory implantation effects (Naderer et al., 2017).

For example, the brand “Su Ning” is an online shopping platform, and themes of animated film *One Hundred Thousand Bad Jokes I* is science fiction including time travel. It is obvious that it is inappropriate to implant an online shopping platform in a science fiction including time travel plots.

(4) Differences in implantation forms

The product placement in anime is implanted using various forms, like combining the brand with the story, in order to fully showcase the implanted brand. Product placement in anime are implanted in various forms, such as combining background implantation with plot fusion implantation, which can provide a clear understanding of

the brand logo and the function of the product, enhancing the audience's recognition and goodwill towards the brand.

For example, for the brand “ChangAn Deepal” in anime *The Three-body Problem*, its product (automobile) is reconstructed and modeled according to the actual product in a one-to-one ratio. And the automobile of the brand “ChangAn Deepal” is also integrated into the storyline. Through the protagonist’s driving, the functions of its products are displayed, allowing the audience to have a better understanding of the products. As the story time of the anime *The Three-body Problem* is set in the future, the plot that protagonist drives a car from “ChangAn Deepal” in a futuristic world can also add a sense of technology to this car product. In addition, the logo of “ChangAn Deepal” is also implanted in the background of the streets with appropriate size in the screen, which constantly increases the audiences’ impression of the brand.

But in animated films, the implantation methods are relatively simple, mostly using the background implantation, and there is no specific display of product functions. For instance, in animated film *One Hundred Thousand Bad Jokes I*, the brand “MI”, as an electronic brand, is only shown the clock function of its product in the product placement, without any integration with the plot. At the same time, the logo is very small, which is difficult to be recognized, thus resulting in a relatively low overall implantation display degree.

However, it is worth noting that although various forms and high frequency of implantation can increase the display degree of the implanted brand, if it is implanted at an inappropriate time, it will still disrupt the storyline and have the opposite effect, like the implantation of the brand “Three Squirrels” in the animated film *One Hundred Thousand Bad Jokes II*. In this animated film, the frequency of brand implantation of the brand “Three Squirrels” is too high, and many times it is implanted at inappropriate time nodes, which disrupts the storyline. And the period of single appearance is too long, with the longest appearance time exceeding 10 seconds, which seriously affects the audiences’ viewing experience.

Chapter 6 Product Placement Effect Equation in Animations

The preceding chapters analyzed the impact of different types of animations as well as different brand awareness on the cognition, attitude, and purchase intention of pan-secondary group. According to the analysis results, it can be concluded that the impact mechanisms of animated films and anime on audience's cognition, attitude and purchase intention are different. Meanwhile, the effect of product placement with different brand awareness is also different.

Therefore, in this chapter, the selected ten implanted brands were divided into four analysis groups according to the animation type and brand awareness. Table 6-1 shows the category of different analysis groups.

Table 6-1 Category of different analysis groups

Analysis Group No.	Animation Type	Brand Awareness	Brand Name
1	Animated Film	High-profile Brands	MI
			Tencent
			Three Squirrels
2	Animated Film	Low-profile Brands	QinQin Snack
			Su Ning
3	Anime	High-profile Brands	Master Kong Green Tea
			Pizza Hut
			McDonald's
4	Anime	Low-profile Brands	XingXin Internet
			ChangAn Deepal

On the basis of the qualitative analysis in the preceding chapters, for each analysis group, the weights of cognition, attitude and purchase intention were calculated by factor analysis. And according to the weights, the product placement effect equations

of the corresponding groups were established. This mathematical model and corresponding correlation analysis are the answer to research sub objective 3 and research sub objective 4.

Before analysis, a reliability test was conducted on the 230 sets of collected data, and the test result showed that Cronbach's α is 0.866, which is greater than 0.8, indicating that all collected data have good reliability, thus ensuring the effectiveness of subsequent quantitative analysis.

Table 6-2 Results of reliability test

Cronbach's α	0.866
No. of Variables	6

6.1 Product Placement Effect Equation of High-profile Brands in Animated Films

In order to calculate the weights of cognition, attitude and purchase intention in the product placement effect equation of high-profile brands in animated film, factor analysis was conducted. Since the number of valid questionnaire responses was 230 and there were three implanted brands in this analysis group, the total sample size was $N = 230 \times 3 = 690$. For the factor analysis, the sample size needs to be at least five times the number of variables and greater than 100. For this research, the number of variables was three. The total sample size for this experiment satisfied both the requirement of five times the number of variables (690 > 15) and the requirement of being greater than 100 (690 > 100), therefore the sample size met the requirements of factor analysis.

Factor analysis also requires sample quality, that is, there must be correlation between the tested variables. In order to verify the correlation between three variables within this analysis group, it was necessary to conduct a correlation analysis on cognition, attitude and purchase intention in post-test questionnaire. The total sample size for the correlation analysis was $N = 230 \times 3 = 690$. The corresponding results are shown in Table 6-3.

The results show that the Pearson correlation coefficient between post cognition and post attitude was 0.468, between post cognition and post purchase intention was 0.485, between post attitude and post purchase intention was 0.620. Since all the significant values of the correlation analysis between the three variables were 0.000, less than 0.01, there existed a significant correlation between post cognition, post attitude and post purchase intention under 99% confidence level.

And all three Pearson correlation coefficients are greater than 0, indicating a positive correlation existed between these three variables. In addition, the Pearson correlation coefficients between post cognition and post attitude, post cognition and post purchase intention fell in the region from 0.4 to 0.6, which demonstrates that the

correlation between post cognition and post attitude, as well as post cognition and post purchase intention were moderate. Meanwhile, the Pearson correlation coefficient between post attitude and post purchase intention was between 0.6 and 0.8, indicating there existed a strong correlation between these two variables.

Table 6-3 Correlation analysis results of post cognition, post attitude and post purchase intention for high-profile brands in animated films

		Post Cognition	Post Attitude	Post Purchase Intention
Post Cognition	Pearson Correlation	1.000	0.468	0.485
	Sig.	/	0.000	0.000
Post Attitude	Pearson Correlation	0.468	1.000	0.620
	Sig.	0.000	/	0.000
Post Purchase Intention	Pearson Correlation	0.485	0.620	1.000
	Sig.	0.000	0.000	/

Table 6-4 The results of KMO and Bartlett's test of sphericity for high-profile brands in animated films

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.679
Bartlett's Test of Sphericity	Approx. Chi-Square	559.368
	df	3
	Sig.	0.000

KMO and Bartlett's test were also used to double check whether there existed any correlation between the three variables. Table 6-4 shows that the KMO value was 0.679, which is greater than 0.5. The significance value of Bartlett's test of sphericity was 0.000, which is less than 0.05. From the results of KMO and Bartlett's test of Sphericity, there existed a significant correlation between post cognition, post attitude and post purchase intention. Therefore, the entire sample group met the sample quality

requirements and was suitable for factor analysis.

From the communalities list (Table 6-5), it can be seen that the extracted variances of the three variables were all greater than 0.5, indicating that factor analysis can be performed and most of the information can be retained with acceptable loss.

Table 6-5 The results of communalities list for high-profile brands in animated films

	Initial	Extraction
Post Cognition	1.000	0.697
Post Attitude	1.000	0.734
Post Purchase Intention	1.000	0.721

From the total variance explained list shown in Table 6-6, it can be observed that only one initial eigenvalue was greater than 1, indicating that there was only one common factor used to summarize the three variables (cognition, attitude, and purchase intention), namely the product placement effect index for high-profile brands in animated film.

Table 6-6 The results of total variance explained list for high-profile brands in animated films

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.051	68.382	68.382	2.051	68.382	68.382
2	0.569	18.963	87.345			
3	0.380	12.655	100.000			

The component scores of the three variables of product placement effect are shown in Table 6-7. It was necessary to normalize and standardize the component scores so as to obtain the weights of post cognition, post attitude and post purchase intention. And the normalized equations are shown in Eq. 6-1 and Eq. 6-2. And the loading and score plot is shown in Figure 6-1

Table 6-7 Results of component score, normalized component score and standardized component score for high-profile brands in animated films

	Post Cognition	Post Attitude	Post Purchase Intention	Length of Vector
Component Score	0.773	0.857	0.849	1.433
Normalized Component Score	0.540	0.598	0.593	1.730
Standardized Component Score	0.312	0.346	0.342	1.000

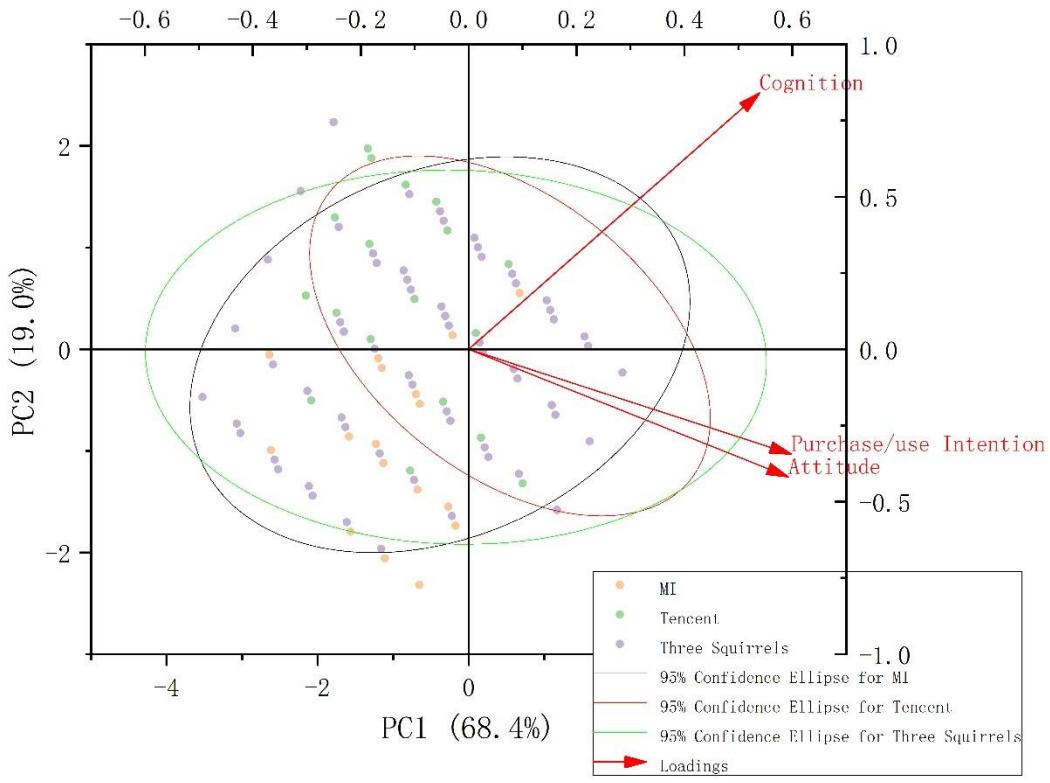


Figure 6-1 Loading plot and score plot for high-profile brands in animated films

$$Normalized\ Component\ Score\ Vector = \frac{Component\ Score\ Vector}{Norm\ of\ Component\ Score\ Vector} \quad \textbf{Eq. 6-1}$$

$$Norm\ of\ Component\ Score\ Vector = \sqrt{\sum Component\ Score^2} \quad \textbf{Eq. 6-2}$$

Standardization is the process of unifying the normalized component scores so that

the sum of the three normalized component scores equals to one. The results obtained after standardization are shown in Table 6-7.

For high-profile brands in animated film, the results demonstrate that the weight of post cognition was 0.312, of post attitude was 0.346, of post purchase intention was 0.342. The equation for the product placement effect is shown as Eq. 6-3, where the subscript “one” indicates the analysis group No.1 (high-profile brands in animated films).

$$\begin{aligned} &Product\ Placement\ Effect\ Index_{\,1} \\ &\quad = 0.312 \times Post\ Cognition_{\,1} + 0.346 \times Post\ Attitude_{\,1} \\ &\quad + 0.342 \times Post\ Purchase\ Intention_{\,1} \end{aligned} \qquad \textbf{Eq. 6-3}$$

The results of product placement effect equation demonstrate that for high-profile brands in animated films, the index of post attitude has the greatest impact on product placement effect, followed by the post purchase intention, whereas, the post cognition has the least impact on product placement effect

6.2 Product Placement Effect Equation of Low-profile Brands in Animated Films

Similar to the analysis in previous section, factor analysis was conducted to calculate the weights of cognition, attitude and purchase intention in product placement effect equation for low-profile brands in animated films. Since there are two brands in this analysis group, and the number of valid post-test questionnaire response was 230, thus the total sample size was $N = 230 \times 2 = 460$. In the factor analysis of this section, the number of variables analyzed was three. Therefore, the total sample size met both the requirement of five times the number of variables (460 > 5) and the requirement of greater than 100 (460 > 100), which met the requirement of factor analysis.

For the requirement of sample quality, a correlation analysis was conducted on the cognition, attitude and purchase intention based on the data of the brand "QinQin Snack" and "Su Ning" in post-test questionnaire. The total sample size was $N = 230 \times 2 = 460$. And the corresponding results are shown in Table 6-8.

Table 6-8 Correlation analysis results of post cognition, post attitude and post purchase intention for low-profile brands in animated films

		Post Cognition	Post Attitude	Post Purchase Intention
Post Cognition	Pearson Correlation	1.000	0.527	0.485
	Sig.	/	0.000	0.000
Post Attitude	Pearson Correlation	0.527	1.000	0.712
	Sig.	0.000	/	0.000
Post Purchase Intention	Pearson Correlation	0.485	0.712	1.000
	Sig.	0.000	0.000	/

The results show that the Pearson correlation coefficient in the post-test questionnaire was 0.527 between cognition and attitude, 0.485 between cognition and

purchase intention, and 0.712 between attitude and purchase intention. The significance values of the correlation analysis between the three variables were all 0.000, less than 0.01. Therefore, at a 99% confidence level, there was a clear correlation between cognition, attitude and purchase intention.

In addition, similar to the previous analysis, the Pearson correlation coefficients were all greater than 0, indicating a positive correlation between the three variables. It can also be seen that for the pairs of post cognition and post attitude, post cognition and post purchase intention, the correlation factors were between the region 0.4 to 0.6, demonstrating a moderate correlation between these two pairs. For the pair of post attitude and post purchase intention, the coefficient factor was larger than 0.6, indicating that the correlation was strong.

In order to further verify whether there existed a correlation between post cognition, post attitude and post purchase intention, KMO and Bartlett's test were also adopted in this section. Table 6-9 shows that the KMO value was 0.672, which is greater than 0.5. And the significance value of Bartlett's sphericity test was 0.000, which is less than 0.05. The results of KMO and Bartlett's test double confirmed the existence of a significant correlation between the three variables. Therefore, the entire sample set met the sample quality requirements and was suitable for factor analysis.

Table 6-9 The results of KMO and Bartlett's test of sphericity for low-profile brands in animated films

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.672
Bartlett's Test of Sphericity	Approx. Chi-Square	487.570
	df	3
	Sig.	0.000

The results from communalities list show that the extracted variances of the three variables were all greater than 0.5, indicating that factor analysis can be performed. And each variable can be represented by the same common factor with only a small amount

of information loss.

Table 6-10 The results of communalities list for low-profile brands in animated films

	Initial	Extraction
Post Cognition	1.000	0.698
Post Attitude	1.000	0.794
Post Purchase Intention	1.000	0.763

From the total variance explained list shown in Table 6-11, it can be found than only one initial eigenvalue was greater than one, which again confirmed that it was possible to generalize the three indicators with a single common factor, which is the product placement effect index for low-profile brands in animated films.

Table 6-11 The results of total variance explained list for low-profile brands in animated films

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.155	71.843	71.843	2.155	71.843	71.843
2	0.559	18.633	90.477			
3	0.286	9.523	100.000			

The component scores of post cognition, post attitude and post purchase intention for low-profile brands in animated film are shown in Table 6-12. The loading plot and score plot is shown in Figure 6-2.

In order to obtain the weights of these three variables, normalization and standardization were conducted, and the results obtained after standardization are also shown in Table 6-12. Therefore, the weight of post cognition was 0.305, the weight of post attitude was 0.351, and the weight of post purchase intention was 0.344. The product placement effect equation for low-profile brands implanted in animated films was deducted as Eq. 6-4, where subscript “2” represents the second analysis group (low-profile brands in animated film).

Table 6-12 Results of component score, normalized component score and standardized component score for low-profile brands in animated films

	Post Cognition	Post Attitude	Post Purchase Intention	Length of Vector
Component Score	0.773	0.891	0.874	1.468
Normalized Component Score	0.527	0.607	0.595	1.729
Standardized Component Score	0.305	0.351	0.344	1.000

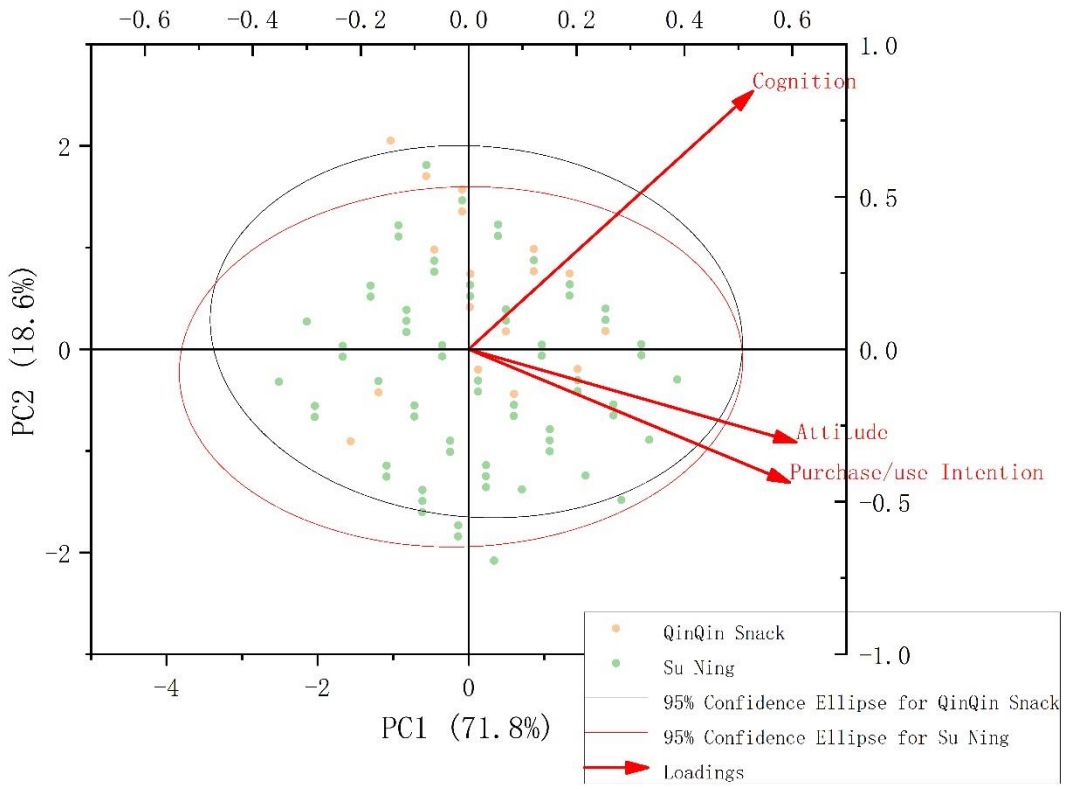


Figure 6-2 Loading plot and score plot for low-profile brands in animated films

$$\begin{aligned} &Product\ Placement\ Effect\ Index_2 \\ &= 0.305 \times Post\ Cognition_2 + 0.351 \times Post\ Attitude_2 \\ &+ 0.344 \times Post\ Purchase\ Intention_2 \end{aligned} \qquad \textbf{Eq. 6-4}$$

From the weight results of the product placement effect equation, it can be seen

that for low-profile brands in animated films, the weight of post cognition had the smallest proportion, the weight of post attitude was in the second place, while the weight of post purchase intention was the largest. This proportion situation is the same as that for high-profile brands in animated films.

6.3 Product Placement Effect Equation of High-profile Brands in Anime

Similar to the analysis in the previous sections in this chapter, factor analysis was also used for high-profile in anime group, so as to calculate the weights of cognition, attitude and purchase intention. For this group, three brands were included, which were "Master Kong Green Tea", "Pizza Hut", and "McDonald's". The number of valid responses in post-test questionnaire was 230, therefore, the total sample size for this group was $N = 230 \times 3 = 690$. And the variables need to be analyzed in this group was also three. For the factor analysis, the sample size needs to be at least five times the number of variables ($5 \times 3 = 15$) and greater than 100. Therefore, the sample size of 690 in this analysis group met the sample size requirements and can be used for factor analysis.

The data of brand "Master Kong Green Tea", "Pizza Hut", and "McDonald's" in the post-test questionnaire were extracted, and correlation analysis was conducted to determine whether the sample set met the quality requirements. The total sample size for the correlation analysis was $N = 230 \times 3 = 690$. The response results are shown in Table 6-13.

The results show that the significance values of correlation analysis between all three variables were 0.00, less than 0.01. Therefore, at a 99% confidence level, there was an obvious correlation between post cognition, post attitude, and post purchase intention. The correlation coefficient between post cognition and post attitude was 0.469, ranging from 0.4 to 0.6. This indicates a moderate positive correlation between post cognition and post attitude. The correlation coefficient between post cognition and post purchase intention was 0.455, which also ranged from 0.4 to 0.6, also indicating a moderate positive correlation existed between post cognition and post purchase intention. The correlation coefficient between post attitude and post purchase intention was 0.616, which is between 0.6 and 0.8, indicating a strong positive correlation.

Table 6-13 Correlation analysis results of post cognition, post attitude and post purchase intention for high-profile brands in anime

		Post Cognition	Post Attitude	Post Purchase Intention
Post Cognition	Pearson Correlation	1.000	0.469	0.455
	Sig.	/	0.000	0.000
Post Attitude	Pearson Correlation	0.469	1.000	0.616
	Sig.	0.000	/	0.000
Post Purchase Intention	Pearson Correlation	0.455	0.616	1.000
	Sig.	0.000	0.000	/

As in the previous section, KMO and Bartlett's test were also used to double check the sample quality in factor analysis. The result shows that the KMO value was 0.656, which is greater than 0.5, and the significance value of Bartlett's test of sphericity was 0.000, which is less than 0.05. From the results of KMO and Bartlett's test, it was verified that the entire group of samples met the requirements of the sample quality, which was suitable for factor analysis.

Table 6-14 The results of KMO and Bartlett's test of sphericity for high-profile brands in anime

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.656
Bartlett's Test of Sphericity	Approx. Chi-Square	449.900
	df	3
	Sig.	0.000

From the results of communalities list, it can be concluded that the extracted variances of the three variables are all larger than 0.5, indicating that factor analysis can be performed. Each variable can be represented reasonably by the same common factor with little loss of information, which is acceptable.

Table 6-15 The results of communalities list for high-profile brands in anime

	Initial	Extraction
Post Cognition	1.000	0.661
Post Attitude	1.000	0.727
Post Purchase Intention	1.000	0.717

From the results of total variance explained list, it can be found that there was only one initial eigenvalue greater than one, which again confirmed that post cognition, post attitude, and post purchase intention can be summarized by one common factor, which was the product placement effect index for high-profile brands in anime.

Table 6-16 The results of total variance explained list for high-profile brands in anime

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.105	67.916	67.916	2.105	67.916	67.916
2	0.611	19.713	87.629			
3	0.383	12.371	100.000			

The component scores of the three variables of product placement effect are shown in Table 6-17. In order to obtain the weights of post cognition, post attitude and post purchase intention in the product placement effect equation, it was necessary to normalize and standardize the component scores, and the results after normalization and standardization are shown in Table 6-17. In addition, the loading plot and score plot is shown in Figure 6-3.

From the results, the weight of post cognition was 0.314, the weight of post attitude was 0.344, and the weight of the posttest Intention is 0.342. For analysis group of high-profile brands in anime, the equation for the product placement effect was deducted as shown in Eq. 6-5, where subscript “3” represents the analysis group No. 3 (high-profile brands in anime).

Table 6-17 Results of component score, normalized component score and standardized component score for high-profile brands in anime

	Post Cognition	Post Attitude	Post Purchase Intention	Length of Vector
Component Score	0.779	0.853	0.847	1.432
Normalized Component Score	0.544	0.595	0.591	1.731
Standardized Component Score	0.314	0.344	0.342	1.000

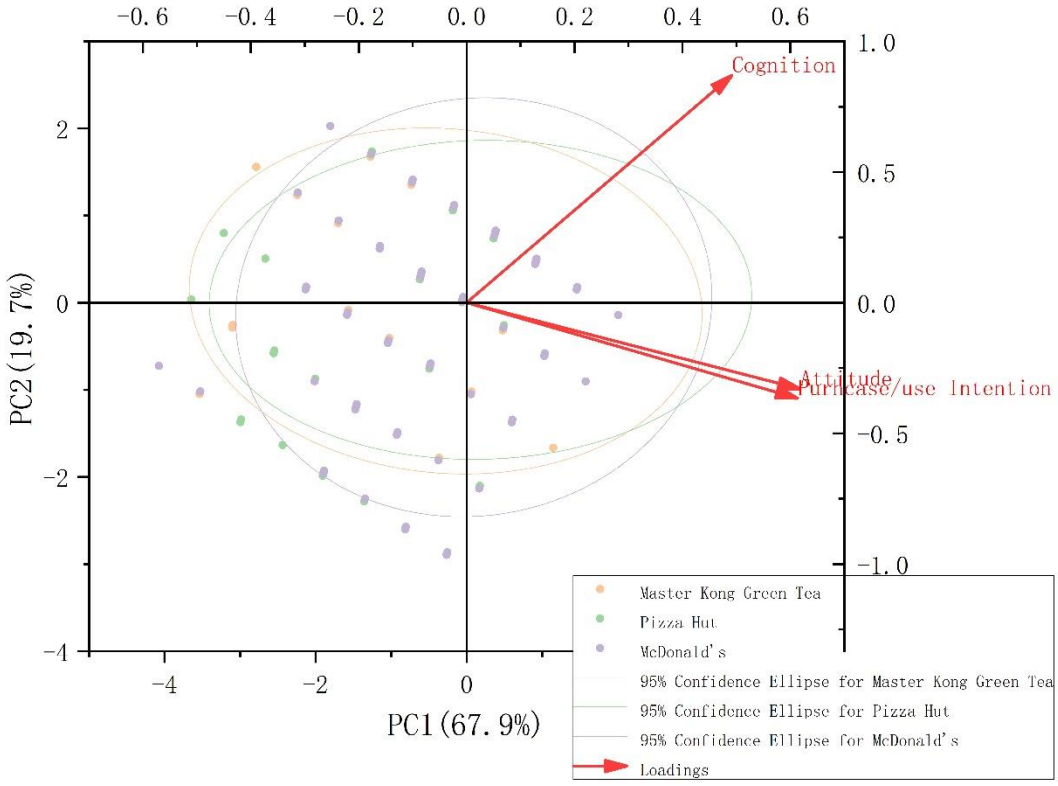


Figure 6-3 Loading plot and score plot for high-profile brands in anime

$$\begin{aligned} &Product\ Placement\ Effect\ Index_3 \\ &= 0.314 \times Post\ Cognition_3 + 0.344 \times Post\ Attitude_3 \\ &+ 0.342 \times Post\ Purchase\ Intention_3 \end{aligned} \quad \textbf{Eq. 6-5}$$

It can be seen from the weight results of the product placement effect equation, for

high-profile brands in anime, post cognition has the least influence on the product placement effect, followed by the post purchase intention, where the most influential factor was attitude. The proportion results obtained in this section was same as from previous analysis.

6.4 Product Placement Effect Equation of Low-profile Brands in Anime

Factor analysis was used to calculate the weights of cognition, attitude, and purchase intention in the product placement effect equation for low-profile brands in anime. Two brands were included in this analysis group, which were "XingXin Internet" and "ChangAn Deepal". The number of valid responses for this analysis group was 230, thus the total sample size was $N = 230 \times 2 = 460$. For factor analysis, the number of variables analyzed was three. According to the requirements of factor analysis, the total number of samples must be greater than five times the number of variables and meet the requirement of at least 100 samples, which was $\max(3 \times 5, 100) = 100$. Therefore, the sample size of 460 in this analysis group met the sample size requirements and can be used for factor analysis.

In addition, according to the requirements of factor analysis, it is also necessary to check whether there exists a correlation between the variables (cognition, attitude, purchase intention). Therefore, it was needed to conduct correlation analysis on the data of brand "XingXin Internet" and "ChangAn Deepal" in the post-test questionnaire. The total sample size for correlation analysis was $N = 230 \times 2 = 460$. And the corresponding results are shown in Table 6-18.

The results show that the significance values of the correlation analysis between the three variables were all 0.000, less than 0.01, thus, there was a significant correlation between cognition, attitude and purchase intention at the 99% confidence level. The correlation coefficient between post cognition and post attitude was 0.518, and the between post cognition and post purchase intention was 0.499, with both pairs ranging from 0.4 to 0.6. This indicates that there was a moderate positive correlation between post cognition and post attitude, as well as post cognition and post purchase intention. The correlation coefficient between post attitude and post purchase intention was 0.713, which is greater than 0.6, indicating a strong and positive correlation between these two variables.

Table 6-18 Correlation analysis results of post cognition, post attitude and post purchase intention for low-profile brands in anime

		Post Cognition	Post Attitude	Post Purchase Intention
Post Cognition	Pearson Correlation	1.000	0.518	0.499
	Sig.	/	0.000	0.000
Post Attitude	Pearson Correlation	0.518	1.000	0.713
	Sig.	0.000	/	0.000
Post Purchase Intention	Pearson Correlation	0.499	0.713	1.000
	Sig.	0.000	0.000	/

In order to double check the correlation between the three variables in factor analysis, KMO and Bartlett's test were also used. The results show that the KMO value was 0.675, which is greater than 0.5 and the significance value of Bartlett's test of sphericity was 0.000, which is less than 0.05. From the results of KMO and Bartlett's test, it was double verified that there was a correlation among the three variables (post cognition, post attitude, and post purchase intention), and therefore the entire analysis group of samples met the requirements of sample quality, which made it suitable to be analyzed in factor analysis.

Table 6-19 The results of KMO and Bartlett's test of sphericity for low-profile brands in anime

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.675
Bartlett's Test of Sphericity	Approx. Chi-Square	488.966
	df	3
	Sig.	0.000

The results of the communalities list demonstrate that the extraction of the three variables were all greater than or equal to 0.7, indicating that each variable can be represented by the same common factor in a reasonable way, with acceptable

information loss. Therefore, factor analysis can be conducted.

Table 6-20 The results of communalities list for low-profile brands in anime

	Initial	Extraction
Post Cognition	1.000	0.700
Post Attitude	1.000	0.786
Post Purchase Intention	1.000	0.773

From the total variance explained list, it can be found that only one eigenvalue was greater than one, which again confirmed that the common factor (product placement effect index) can be used to summarize the post cognition, post attitude and post purchase intention, and product placement effect index can represent at least 70% of information.

Table 6-21 The results of total variance explained list for low-profile brands in anime

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.159	71.969	71.969	2.159	71.969	71.969
2	0.554	18.469	90.438			
3	0.287	9.562	100.000			

Table 6-22 Results of component score, normalized component score and standardized component score for low-profile brands in anime

	Post Cognition	Post Attitude	Post Purchase Intention	Length of Vector
Component Score	0.775	0.887	0.879	1.470
Normalized Component Score	0.527	0.604	0.598	1.729
Standardized Component Score	0.305	0.349	0.346	1.000

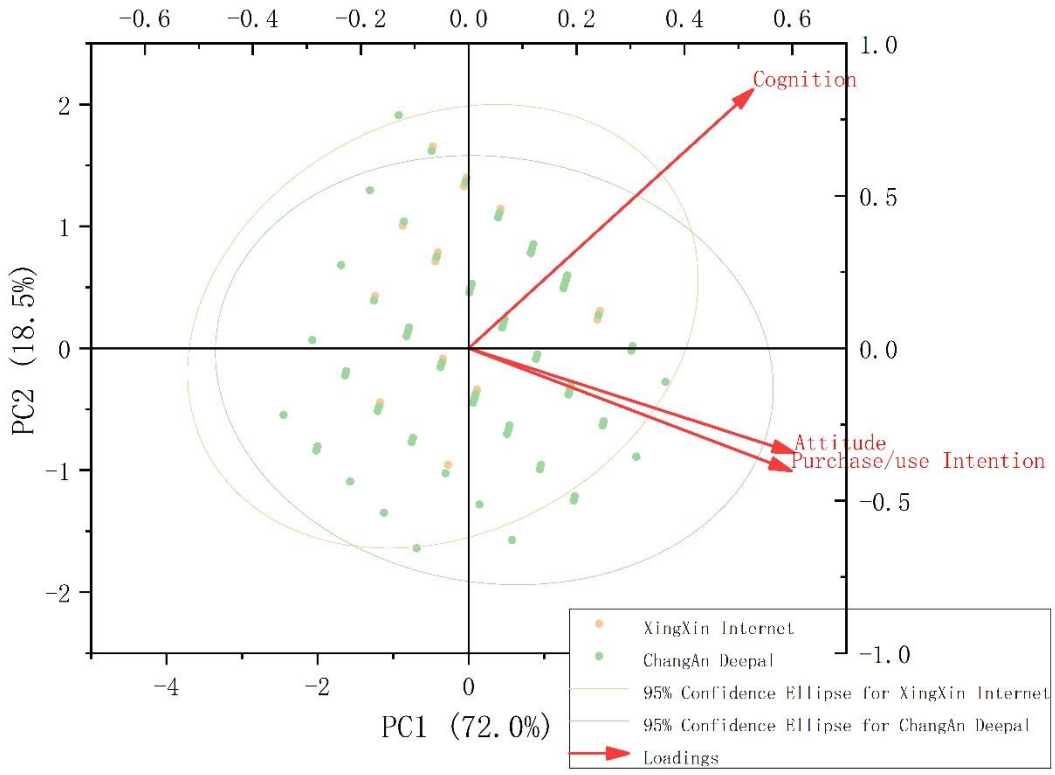


Figure 6-4 Loading plot and score plot for Low-profile brands in anime

The component scores of post cognition, post attitude and post purchase intention are shown in Table 6-22. In order to obtain the weights of the three components in the product placement effect equation, it is necessary to normalize and standardize the component scores. The normalized and standardized results are shown in Table 6-22. Meanwhile, the loading plot and score plot of normalized component vectors is shown in Figure 6-4 for low-profile brands in anime.

The weight of post cognition was 0.305, the weight of post attitude was 0.349, and the weight of post purchase intention was 0.346. For low-profile brands in anime, the product placement effect equation was deducted as Eq. 6-6. And the subscript "4" in the equation represents the analysis group No.4 (low-profile brands in anime).

$$\begin{aligned} &Product\ Placement\ Effect\ Index_4 \\ &= 0.305 \times Post\ Cognition_4 + 0.349 \times Post\ Attitude_4 \\ &+ 0.344 \times Post\ Purchase\ Intention_4 \end{aligned} \quad \textbf{Eq. 6-6}$$

From the weight results of product placement effect equation, it can be seen that, similar to the results of other analysis groups, for low-profile brands in anime, post cognition has the smallest impact on product placement effect, followed by post purchase intention, while the post attitude contributed the greatest impact.

6.5 Discussion

Firstly, through correlation analysis, this study concludes that there is a correlation relationship between cognition, attitude, and purchase intention. Among that, attitude and purchase intention have a positive and strong correlation, which indicates that participants' attitude towards the implanted brand can directly affect their willingness to purchase. If the audience has favorable impression of the product placement, they will further generate willingness to purchase. In contrast, if there is aversion to the product placement, it will inhibit the consumption willingness. This is in line with Achor et al.'s theory, that consumers' emotions embedded in the marketing environment will affect their consumption decisions (Achor et al., 2016).

Therefore, product placement should be integrated with the storyline and linked to positive characters or plots (Dias et al., 2017). So that the audience can have a favorable impression of the implanted product or brand, which in turn inspires the willingness to purchase intention.

Secondly, in this research, the mathematical models including cognition, attitude, and purchase intention were obtained by factor analysis, according to different brand awareness and animation types. In each equation, it can be found that coefficients of post cognition, post attitude and post purchase intention are relatively similar. This indicates that in different types of animation, the contribution of three variables to the product placement effect is similar, and the advantages of implantation methods have not been fully utilized.

Thirdly, from the weights of each variable in all four mathematical models, it can be concluded that attitude has the largest weight, followed by purchase intention, and the cognition contributes the least to the product placement effect. This indicates that the most influential factor in the product placement effect is the audience's attitude towards the brand.

This study suggests that advertisers and animation producers should enhance audience's attitude toward a brand, adopt diverse forms of product placement rather

than relying on repeated background implantation. Product placement should be combined with the storyline, linked to positive characters or plot, consistent with the theme to achieve better placement effects.

Chapter 7 Conclusion, Limitation and Future Work

7.1 Conclusion

Based on communication persuasion theory, the two-step flow communication theory, AIDMA theory, and Lavidge and Steiner six-step theory, this study explores the effect of product placement in animation from three perspectives: cognition, attitude, and purchase intention. Combined with literature research, this study also explores the impact of different brand awareness and animation types on the product placement effect in animation. The research has drawn the following conclusions:

7.1.1 Product Placement Effect in Animation

First of all, through factor analysis, the data among cognition, attitude and purchase intention are determined to be correlated, leading to the development of a mathematical model for predicting the product placement effect in the animation on pan-secondary group based on these three variables. At the same time, according to different brand awareness and animation types, the model is subdivided into four sub models. Through establishing these four mathematical models, the expression of product placement effect in animation is made clearer and intuitive. The expressions of four mathematical models are shown below, which is the answer to sub objective 4 and RQ1.

(1) High-profile brands in animated films

$$Product\ Placement\ Effect\ Index_1 = 0.312 \times Post\ Cognition_1 + 0.346 \times Post\ Attitude_1 + 0.342 \times Post\ Purchase\ Intention_1$$

(2) Low-profile brands in animated film

$$Product\ Placement\ Effect\ Index_2 = 0.305 \times Post\ Cognition_2 + 0.351 \times Post\ Attitude_2 + 0.344 \times Post\ Purchase\ Intention_2$$

(3) High-profile brands in anime

$$Product\ Placement\ Effect\ Index_3 = 0.314 \times Post\ Cognition_3 + 0.344 \times Post\ Attitude_3 + 0.342 \times Post\ Purchase\ Intention_3$$

(4) Low-profile brands in anime

$$Product\ Placement\ Effect\ Index_4 = 0.305 \times Post\ Cognition_4 + 0.349 \times Post\ Attitude_4 + 0.344 \times Post\ Purchase\ Intention_4$$

Secondly, the effect of product placement in animation is composed of post cognition factor, post attitude factor and post purchase intention factor. Among them, the most influential factor is post attitude factor. This means that in order to improve the effect of product placement in animation, special attention should be paid to the impact of product placement on consumers' attitudes. And this is the answer to sub objective 4.

7.1.2 Correlation between Cognition, Attitude and Purchase Intention

Through correlation analysis, it is found that there is a correlation between the cognition, attitude, and purchase intention, which proves that these three variables can influence each other. It is particular worth noting that there is a positive and strong correlation between attitude and purchase intention. Therefore, regarding implanting product placement in animation, it is important to avoid excessive display, so as to prevent triggering consumers' resistance and negative attitude, which will exert negative impact on consumption. This is the answer to sub objective 3.

7.1.3 Influence Mechanism of Brand Awareness on the Product Placement Effect in Animation

Through comparative study, this study finds that for high-profile brands, although the audiences' cognition is improved after watching the product placement in animation, their attitude and purchase intention are decreased. However, for low-profile brands,

consumers have improved their cognition, attitude and purchase intention after watching product placement in animation. The results of comprehensive analysis shows that low-profile brands can achieve better product placement effects in animation. This finding is different from the results that in other media, where high-profile brands can achieve better product placement effect (Martí-Parreño et al., 2017).

It can also be concluded that animation is a suitable marketing channel for low-profile brand. This is because low-profile brands can quickly transfer brand knowledge to the audience through product placement, thereby deepening audiences' understanding of the brand. Meanwhile, low-profile brands can gain audience favor and improve their purchase intention of the brand through interaction with positive characters. This is the answer to sub objective 1 and RQ2.

7.1.4 Influence Mechanism of different Animation Types on the Product Placement Effect in Animation

Through comparative study, this study finds that, for animated film, although it achieves a good performance in cognition, there has been a decline in aspects of attitude and purchase intention. On the contrary, in anime, the audience's cognition, attitude and purchase intention towards the implanted brand are all improved. Therefore, it can be concluded that, brand implanting in anime can achieve better product placement effect. This result also confirms that due to the low payment form, comfortable and unrestricted viewing environment, high compatibility between product placement and content, as well as the integration of various implantation forms, the implanted brands in anime can gain the attention and favorable impression of the audience, thereby enhance their willingness to consume, and thus obtain better product placement effects. This is the answer to sub objective 2 and RQ3.

In summary, this study suggests that low-profile brands can be implanted in anime, in order to achieve good advertising effects. For the effect of product placement in animation, obtaining a positive attitude from the audience, or not damaging the audience's favorable impression is the most important. The mathematical model and

analysis results provided in this study can provide guidance for academic research and animation implantation practice.

7.2 Contribution to Knowledge Science

Knowledge science focuses on human creation and perception, integrating science, technology, design, media, and other aspects. This study is based on human cognition, attitudes, and intentions to explore the effects of product placement in animation. The study of product placement in animation is not only a marketing tool, but also a multi-disciplinary study that combines technology, art, and marketing, in line with the integration of knowledge science research. This study adopts a combination of qualitative and quantitative methods to analyze data, establish models, and intuitively obtain research results. It provides theoretical support for better implanting brands or products in animations, obtaining higher cognition, attitudes and purchase intentions, which is in line with the scientific nature of knowledge science research. In summary, this study conforms to the research characteristics of knowledge science and is creative research in this field.

In addition, the results of this study can help to understand the influence mechanism of product placement in animation on human beings, which expands the existing research scope of knowledge science to a certain extent, and has certain significance in social application.

7.3 Limitations

This study explores the effects of product placement in animation from the perspectives of cognition, attitude, and purchase intention, combined with different animation types and different brand awareness. However, due to the limitations of research design and experiment, this study still has some shortcomings:

(1) Although the total sample size of this study met the statistical requirements, because most of the research subjects came from northern part of China, the sampling area was limited, and the situation in other regions of China was not taken into account.

(2) Although participants were asked to answer the post-test questionnaire 30 minutes after watching the selected animation segments, this is still a short-term survey, and the results of this study can only illustrate the short-term impact of product placement in animation on pan-secondary group, without considering the long-term impact.

(3) The selected product placement display characteristics are basically similar in different control groups. So, this study did not comprehensively consider the impact of different display features on the effectiveness of product placement.

7.4 Future Work

In the subsequent research, it is necessary to pay attention to the integration of online and offline modes, and their impact on the product placement effect in animation. Product marketing is not only limited to online placement advertising but increasingly emphasizes the integration of online and offline modes, such as customizing animation packaging for products. It is worth exploring whether this marketing approach will enhance the effect of product placement.

Also, it is necessary to expand the sample size and broaden the sample area. As Chinese animations are gradually going to the world through the online platform, it is also necessary to explore the cognition, attitude and purchase intention of audiences in other countries towards product placement in Chinese animations, which can provide theoretical support for better effects of product placement in Chinese animation.

In addition, it is necessary to explore the product placement produced by artificial intelligence (AI). AI technology has entered the field of dynamic advertising placement, where AI can customize unique real-time ads for consumers by analyzing their preferences and behavior data. Currently, this type of product placement is mostly used in pre-movie advertisement in online TV programs. According to the current trend, the integration of AI into more media types and the creation of new forms of product placement can be expected soon. However, AI product placement may also create a negative attitude towards the audience. Therefore, it is worthy to conduct research on how to generate product placement using AI with better product placement effect.

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To myself, Hakuna Matata.

References

Aaker, D. A. (1996). Measuring brand equity across products and markets. *California Management Review*, *32*, 102–120.

Auty, S., & Lewis, C. (2004). Exploring children's choice: The reminder effect of product placement. *Psychology and Marketing*, *21*(9), 697–713. https://doi.org/10.1002/mar.20025

Babin, B. J., Herrmann, J.-L., Kacha, M., & Babin, L. A. (2021). The effectiveness of brand placements: A meta-analytic synthesis. *International Journal of Research in Marketing*, *38*(4). https://doi.org/10.1016/j.ijresmar.2021.01.003

Balasubramanian, S. K., Karrh, J. A., & Patwardhan, H. (2006). Audience Response to Product Placements: An Integrative Framework and Future Research Agenda. *Journal of Advertising*, *35*(3), 115–141. https://doi.org/10.2753/joa0091-3367350308

Beaufort, M. (2018). How candy placements in films influence children's selection behavior in real-life shopping scenarios – an Austrian experimental field study. *Journal of Children and Media*, *13*(1), 53–72. https://doi.org/10.1080/17482798.2018.1547776

Bergkvist, L., & Taylor, C. R. (2022). Reviving and Improving Brand Awareness as a Construct in Advertising Research. *Journal of Advertising*, *51*(3), 1–14. https://doi.org/10.1080/00913367.2022.2039886

Binder, A., & Matthes, J. (2023). What can stop the "pester power"? A longitudinal study on the impact of children's audiovisual media consumption on media-motivated food purchase requests. *Pediatric Obesity*, *18*(6). https://doi.org/10.1111/ijpo.13018

Blut, M., Chaney, D., Renaud Lunardo, Mencarelli, R., & Grewal, D. (2023). Customer perceived value: A comprehensive meta-analysis. *Journal of Service Research*. https://doi.org/10.1177/10946705231222295

Boerman, S. C., Tessitore, T., & Müller, C. M. (2020). Long-term effects of brand placement disclosure on persuasion knowledge and brand responses. *International Journal of*

Advertising, *40*(1), 1–23. https://doi.org/10.1080/02650487.2020.1775036

Brown, C. L., Matherne, C. E., Bulik, C. M., Howard, J. B., Ravanbakht, S. N., Skinner, A. C., Wood, C. T., Bardone-Cone, A. M., Brown, J. D., Perrin, A. J., Levine, C., Steiner, M. J., & Perrin, E. M. (2017). Influence of product placement in children's movies on children's snack choices. *Appetite*, *114*, 118–124. https://doi.org/10.1016/j.appet.2017.03.022

Cárdaba, M. A. M., Fernández, A., Martinez, L., & Cuesta, U. (2022). Make it part of the story: The role of product placement prominence and integration in fashion and beauty blogs among young digital natives. *Journal of Global Fashion Marketing*, *14*(2), 1–16. https://doi.org/10.1080/20932685.2022.2085607

Cha, J. (2016). Product placement in movies: Perspectives from motion picture firms. *Journal of Media Business Studies*, *13*(2), 95–116. https://doi.org/10.1080/16522354.2016.1159802

Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, *39*(5), 752–766. https://doi.org/10.1037/0022-3514.39.5.752

Chang, H. H., Lu, Y.-Y., & Lin, S. C. (2019). An elaboration likelihood model of consumer respond action to facebook second-hand marketplace: Impulsiveness as a moderator. *Information & Management*, *57*(2), 103171. https://doi.org/10.1016/j.im.2019.103171

Chaudhuri, A., & Holbrook, M. B. (2001). The Chain of Effects from Brand Trust and Brand Affect to Brand Performance: The Role of Brand Loyalty. *Journal of Marketing*, *65*(2), 81–93. https://doi.org/10.1509/jmkg.65.2.81.18255

Chovanová, H. H., Korshunov, A. I., & Babčanová, D. (2015). Impact of Brand on Consumer Behavior. *Procedia Economics and Finance*, *34*, 615–621. Sciencedirect. https://doi.org/10.1016/s2212-5671(15)01676-7

Davtyan, D., Cunningham, I., & Tashchian, A. (2020). Effectiveness of brand placements in music videos on viewers' brand memory, brand attitude and behavioral intentions. *European Journal of Marketing*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/ejm-08-2019-0670

de Gregorio, F., & Sung, Y. (2010). Understanding attitudes toward and behaviors in response to product placement. *Journal of Advertising*, *39*(1), 83–96. https://doi.org/10.2753/joa0091-3367390106

Dias, J. A., Dias, J. G., & Lages, C. (2017). Can negative characters in soap operas be positive for product placement? *Journal of Business Research*, *71*, 125–132. https://doi.org/10.1016/j.jbusres.2016.10.010

Dowling, G. R. (1986). Perceived risk: The concept and its measurement. *Psychology and Marketing*, *3*(3), 193–210. https://doi.org/10.1002/mar.4220030307

Du, H. S., Xu, J., Tang, H., & Jiang, R. (2020). Repurchase Intention in Online Knowledge Service: The Brand Awareness Perspective. *Journal of Computer Information Systems*, *62*(1), 1–12. https://doi.org/10.1080/08874417.2020.1759159

Du, Y., Rui, J., & Yu, N. (2023). How Parasocial Relationship and Influencer-Product Congruence Shape Audience's Attitude Towards Product Placement in Online Videos: The Mediation Role of Reactance. *Psychology Research and Behavior Management*, *Volume 16*, 1315–1329. https://doi.org/10.2147/prbm.s406558

Eagle, L., & Dahl, S. (2015). Product Placement in Old and New Media: Examining the Evidence for Concern. *Journal of Business Ethics*, *147*(3), 605–618. https://doi.org/10.1007/s10551-015-2955-z

Ebrahim, R., Ghoneim, A., Irani, Z., & Fan, Y. (2016). A brand preference and repurchase intention model: the role of consumer experience. *Journal of Marketing Management*, *32*(13-14), 1230–1259. https://doi.org/10.1080/0267257x.2016.1150322

Febriyantoro, M. T. (2020). Exploring YouTube Marketing Communication: Brand awareness, Brand Image and Purchase Intention in the Millennial Generation. *Cogent Business & Management*, *7*(01).https://doi.org/10.1080/23311975.2020.1787733

Friestad, M., & Wright, P. (1994). The Persuasion Knowledge Model: How people cope with persuasion attempts. *Journal of Consumer Research*, *21*(1), 1–31. https://doi.org/10.1086/209380

Gillespie, B., Muehling, D. D., & Kareklas, I. (2018). Fitting product placements: Affective fit and cognitive fit as determinants of consumer evaluations of placed brands. *Journal of Business Research*, *82*, 90–102. https://doi.org/10.1016/j.jbusres.2017.09.002

Giombi, K., Viator, C., Hoover, J., Tzeng, J., Sullivan, H. W., O'Donoghue, A. C., Southwell, B. G., & Kahwati, L. C. (2022). The impact of interactive advertising on consumer engagement, recall, and understanding: A scoping systematic review for informing regulatory science. *PLoS ONE*, *17*(2), 1–18. https://doi.org/10.1371/journal.pone.0263339

Goodman, L. A., & Liao, T. F. (2015). Paul felix lazarsfeld's impact on sociological methodology. *Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique*, *129*(1), 94–102. https://doi.org/10.1177/0759106315615517

Guo, L., & Li, J. (2017). Animating chinese cinemas: A preface. *Journal of Chinese Cinemas*, *11*(2), 115–122. https://doi.org/10.1080/17508061.2017.1322781

Gupta, P. B., & Gould, S. J. (2007). Recall of products placed as prizes versus commercials in game shows. *Journal of Current Issues & Research in Advertising*, *29*(1), 43–53. https://doi.org/10.1080/10641734.2007.10505207

Heiser, R. S., Sierra, J. J., & Torres, I. M. (2008). Creativity via cartoon spokespeople in print ads: Capitalizing on the distinctiveness effect. *Journal of Advertising*, *37*(4), 75–84. https://doi.org/10.2753/joa0091-3367370406

Hekkert, P., Thurgood, C., & Whitfield, T. W. A. (2013). The mere exposure effect for consumer products as a consequence of existing familiarity and controlled exposure. *Acta Psychologica*, *144*(2), 411–417. https://doi.org/10.1016/j.actpsy.2013.07.015

Huang, P., & Yao, C. (2017). Effects of placement marketing on product attitude and purchase intention in traditional industry. *EURASIA Journal of Mathematics, Science and Technology Education*, *13*(12). https://doi.org/10.12973/ejmste/78701

Huang, R., & Sarigöllü, E. (2012). How brand awareness relates to market outcome, brand equity, and the marketing mix. *Journal of Business Research*, *65*(1), 92–99. https://doi.org/10.1016/j.jbusres.2011.02.003

IResaerch. China Secondary Industry Research Report in year 2021. Online referencing, https://www.163.com/dy/article/GMS0KGDN0511B3FV.html (accessed 16 Jun 2022)

Karpinska-Krakowiak, M. (2021). Women are more likely to buy unknown brands than men: The effects of gender and known versus unknown brands on purchase intentions. *Journal of Retailing and Consumer Services*, *58*, 102273. https://doi.org/10.1016/j.jretconser.2020.102273

Karrh, J. A., McKEE, K. B., & Pardun, C. J. (2003). Practitioners' Evolving Views on Product Placement Effectiveness. *Journal of Advertising Research*, *43*(2), 138–149. https://doi.org/10.1017/S0021849903030198

Keller, K. L. (2003). Brand synthesis: The multidimensionality of brand knowledge. *Journal of Consumer Research*, *29*(4), 595–600. https://doi.org/10.1086/346254

Kim, S., & Littrell, M. A. (2001). Souvenir buying intentions for self versus others. *Annals of Tourism Research*, *28*(3), 638–657. https://doi.org/10.1016/s0160-7383(00)00064-5

Kongmanon, J., & Petison, P. (2022). What do you see and what do you recall? Using eye tracking to understand product placement. *Cogent Business & Management*, *9*(1). https://doi.org/10.1080/23311975.2022.2120263

KpACGN. 2024 Trend Report on Chinese Animation. Online referencing, https://www.kpacg.com/archives/chinese-animation-industry-report-of-2024.html (accessed 30 May 2024)

Lavidge, R. J., & Steiner, G. A. (1961). A model for predictive measurements of advertising effectiveness. *Journal of Marketing*, *25*(6), 59–62. https://doi.org/10.1177/002224296102500611

Mandolfo, M., Di Dalmazi, M., & Lamberti, L. (2022). Now you see me. Evaluating visual and auditory brand placement disclosures in music videos. *Journal of Marketing Communications*, *30*(5), 1–23. https://doi.org/10.1080/13527266.2022.2152475

Magnusson K. Understanding statistical power and significance testing. Online referencing, https://rpsychologist.com/d3/nhst/ (accessed 09 Jan 2022)

Martí-Parreño, J., Bermejo-Berros, J., & Aldás-Manzano, J. (2017). Product placement in video games: The effect of brand familiarity and repetition on consumers' memory. *Journal of Interactive Marketing*, *38*(1), 55–63. https://doi.org/10.1016/j.intmar.2016.12.001

Matthes, J., & Naderer, B. (2015). Children's consumption behavior in response to food product placements in movies. *Journal of Consumer Behaviour*, *14*(2), 127–136. https://doi.org/10.1002/cb.1507

McDonnell, J., & Drennan, J. (2010). Virtual Product Placement as a New Approach to Measure Effectiveness of Placements. *Journal of Promotion Management*, *16*(1-2), 25–38. https://doi.org/10.1080/10496490903571365

McQuarrie, E. F., & Phillips, B. J. (2005). Indirect persuasion in advertising: How consumers process metaphors presented in pictures and words. *Journal of Advertising*, *34*(2), 7–20. https://www.jstor.org/stable/4189294

Moisescu, O. (2009). The importance of brand awareness in consumer's buying decision and perceived risk assessment. *Management & Marketing*, *7*(1), 103–110. https://doaj.org/article/0e9fe7367d0c4cec8f2bcbf0bd63d04e

Mühlbacher, H., Raies, K., Grohs, R., & Koll, O. (2016). Drivers of brand strength: Configural paths to strong cognitive brand equity. *Journal of Business Research*, *69*(8), 2774–2780. https://doi.org/10.1016/j.jbusres.2015.11.013

Naderer, B., Matthes, J., & Bintinger, S. (2020). It is just a spoof: spoof placements and their impact on conceptual persuasion knowledge, brand memory, and brand evaluation. *International Journal of Advertising*, *35*(2), 1–18. https://doi.org/10.1080/02650487.2020.1793632

Naderer, B., Matthes, J., Marquart, F., & Mayrhofer, M. (2016). Children's attitudinal and behavioral reactions to product placements: investigating the role of placement frequency, placement integration, and parental mediation. *International Journal of Advertising*, *37*(2), 236–255. https://doi.org/10.1080/02650487.2016.1218672

Naderer, B., Matthes, J., & Spielvogel, I. (2017). How brands appear in children's movies. A

systematic content analysis of the past 25 Years. *International Journal of Advertising*, *38*(2), 237–257. https://doi.org/10.1080/02650487.2017.1410000

Naderer, B., Matthes, J., & Zeller, P. (2017). Placing snacks in children's movies: cognitive, evaluative, and conative effects of product placements with character product interaction. *International Journal of Advertising*, *37*(6), 852–870. https://doi.org/10.1080/02650487.2017.1348034

Navas, V., Simo, M., & Padilla, A. (2019). Investigating the effects of non-branded foods placed in cartoons on children's food choices through type of food, modality and age. *International Journal of Environmental Research and Public Health*, *16*(24), 5032. https://doi.org/10.3390/ijerph16245032

Neale, M., & Corkindale, D. (2021). Make product placement work for you: Get less exposure. *Business Horizons*, *65*(2). https://doi.org/10.1016/j.bushor.2021.02.034

Newell, J., Salmon, C. T., & Chang, S. (2006). The Hidden History of Product Placement. *Journal of Broadcasting & Electronic Media*, *50*(4), 575–594. https://doi.org/10.1207/s15506878jobem5004_1

Norton, M. I., Frost, J. H., & Ariely, D. (2013). Less is often more, but not always: Additional evidence that familiarity breeds contempt and a call for future research. *Journal of Personality and Social Psychology*, *105*(6), 921–923. https://doi.org/10.1037/a0034379

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*, *19*, 123–205. https://doi.org/10.1016/s0065-2601(08)60214-2

Rossiter, J. R. (2014). "Branding" explained: Defining and measuring brand awareness and brand attitude. *Journal of Brand Management*, *21*(7-8), 533–540. https://doi.org/10.1057/bm.2014.33

Rubio, N., Oubiña, J., & Villaseñor, N. (2014). Brand awareness–Brand quality inference and consumer's risk perception in store brands of food products. *Food Quality and Preference*, *32*, 289–298. https://doi.org/10.1016/j.foodqual.2013.09.006

Russell, C. A., & Belch, M. (2005). A Managerial Investigation into the Product Placement Industry. *Journal of Advertising Research*, *45*(01), 73. https://doi.org/10.1017/s0021849905050038

Russell, C. A., & Stern, B. B. (2006). Consumers, Characters, and Products: A balance model of sitcom product placement effects. *Journal of Advertising*, *35*(1), 7–21. https://doi.org/10.2753/joa0091-3367350101

Sabour, N. I., Pillai, D., Gistri, G., & Balasubramanian, S. K. (2015). Attitudes and related perceptions about product placement: a comparison of Finland, Italy and the United States. *International Journal of Advertising*, *35*(2), 362–387. https://doi.org/10.1080/02650487.2015.1031205

Santoso, I., Wright, M., Trinh, G., & Avis, M. (2020). Is digital advertising effective under conditions of low attention? *Journal of Marketing Management*, *36*(17-18), 1–24. https://doi.org/10.1080/0267257x.2020.1801801

Schmidt, J., & Bijmolt, T. H. A. (2019). Accurately measuring willingness to pay for consumer goods: a meta-analysis of the hypothetical bias. *Journal of the Academy of Marketing Science*, *48*. https://doi.org/10.1007/s11747-019-00666-6

Setyadi, B, Helmi, S., & Santoso, A. (2024). Unraveling the influence of product advertising on consumer buying interest: exploring product knowledge, product quality, and mediation effects. *Cogent Business & Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2349253

Sharma, S., & Bumb, A. (2020). Product placement in entertainment industry: A systematic review. *Quarterly Review of Film and Video*, *39*(1), 1–17. https://doi.org/10.1080/10509208.2020.1811606

Spielvogel, I., Matthes, J., Naderer, B., & Karsay, K. (2018). A treat for the eyes. An eye-tracking study on children's attention to unhealthy and healthy food cues in media content. *Appetite*, *125*, 63–71. https://doi.org/10.1016/j.appet.2018.01.033

Spielvogel, I., Naderer, B., & Matthes, J. (2019). Again and again: exploring the influence of

disclosure repetition on children's cognitive processing of product placement. *International Journal of Advertising*, *39*(5), 1–20. https://doi.org/10.1080/02650487.2019.1648984

Srivastava, R. K., & Bhide, M. (2017). Do Brands Improve Consumer Perception Due to Product Placement in Emerging Markets? *Back to the Future: Using Marketing Basics to Provide Customer Value. Proceeding of AMSAC 2017* , 461–471. https://doi.org/10.1007/978-3-319-66023-3_154

Stephen, G., Inbaraj, D., S. P., A., & T., P. (2021). Investigating the influence of audiences' movie-viewing motives on attitude towards brand placement in movies. *Journal of Global Scholars of Marketing Science*, *31*(4), 1–24. https://doi.org/10.1080/21639159.2020.1808813

Sung, Y., & de Gregorio, F. (2008). New brand worlds: College student consumer attitudes toward brand placement in films, television shows, songs, and video games. *Journal of Promotion Management*, *14*(1-2), 85–101. https://doi.org/10.1080/10496490802498272

Tian, S., Tao, W., Hong, C., & Tsai, W.-H. S. (2021). Meaning transfer in celebrity endorsement and co-branding: meaning valence, association type, and brand awareness. *International Journal of Advertising*, *41*(6), 1–21. https://doi.org/10.1080/02650487.2021.1940059

Vrtana, D., & Krizanova, A. (2023). The Power of Emotional Advertising Appeals: Examining Their Influence on Consumer Purchasing Behavior and Brand–Customer Relationship. *Sustainability*, *15*(18), 13337. MDPI. https://doi.org/10.3390/su151813337

Wang, C., Liu, T., Zhu, Y., Wang, H., Wang, X., & Zhao, S. (2023). The influence of consumer perception on purchase intention: Evidence from cross-border e-commerce platforms. *Heliyon*, *9*(11), e21617. https://doi.org/10.1016/j.heliyon.2023.e21617

Weeks, B. E., Ardèvol-Abreu, A., & Gil de Zúñiga, H. (2015). Online influence? Social media use, opinion leadership, and political persuasion. *International Journal of Public Opinion Research*, *29*(2), 214–239. https://doi.org/10.1093/ijpor/edv050

Zhang, X. (2020). The influences of brand awareness on consumers' cognitive process: An event-

related potentials study. *Frontiers in Neuroscience*, *14*(1). https://doi.org/10.3389/fnins.2020.00549

Zhang, Y., & Guo, X. (2023). "New and old": Consumer evaluations of co-branding between new brands and Chinese time-honored brands. *Journal of Retailing and Consumer Services*, *73*, 103293. https://doi.org/10.1016/j.jretconser.2023.103293

Appendix

Appendix A

Informed consent

(English Translation of Chinese Original Version)

You are invited to participate in a research survey. This informed consent provides you with some information to help you decide whether to participate in this study. Please read carefully. If you have any questions, please ask the researcher.

1. This survey is to study the effect of product placement in animations on Pan-secondary group.
2. This questionnaire is used to collect the participants' cognition, attitude and purchase/use intention about the products which disclosure in the selected animations.
3. If you agree to participate in this study, you will be asked to answer the questionnaires, which consists of 2 parts, the pre-test questionnaire and post-test questionnaire. After you finish the pre-test questionnaire, you will watch the selected animations, then answer the post-test questionnaire. Please answer the questionnaire according to your subjective feelings. Your questionnaire is only used for this study.
4. Risk and discomfort: This study will not have any adverse effects on your health.
5. Benefit: Scientific analysis of your questionnaire results will help to improve the product placement in animations.
6. As a research subject, please truly express your subjective feelings and fill in the questionnaire. If you have any discomfort, please inform the researcher in time.
7. Privacy: If you decide to participate in this study, all the personal information is confidential.

You can learn about the information related to this study at any time. If you have any questions related to this study, please contact with the researcher, ZITONG CHENG through e-mail: s1920021@jaist.ac.jp.

□ I have read this informed consent form.

□ I have the opportunity to ask questions and all the questions have been answered.

□ I understand that participation in this study is voluntary.

□ I can choose not to participate in this study or discontinue this study at any time under any circumstances.

Appendix B

The product placement in animation

Part 1: Basic Information Questionnaire

Thank you very much for being able to participate in this questionnaire! The purpose of this questionnaire is to investigate the effect of product placement in animations. All data of this questionnaire are for academic analysis only, your opinion is very important to this study, thank you for your participation.

1. Name

_____

2. Gender

○ Male

○ Female

3. Age

_____

4. Education background

○Highschool

○Higher education

○Bachelor degree

○Master degree or above

5. Profession

○ Student

○Company Stuff

○Technical staff

○ Freelancer

○Others

6. How often have you seen anime (carton) film in the last year?

○Hardly watch

○More than 1 time a week

○Everyday

7.How often have you seen animated film in the last year?

○Hardly watch

○More than 1 time a month

○Everyday

8. How often will you buy anime related products??

○Hardly buy

○More than 1 time a month

○ Usually

9. Do you know about product placement?

○ No idea

○Don't know much about it

○Totally understand

10. How do you think about the product placement in animations?

○Unacceptable

○Don't care

○Acceptable

11. Can you notice the product placement in animations?

○No

○Sometimes

○Absolutely

Appendix C

The product placement in animation

Part 2: Pre-test Questionnaire

These questions are used to test your cognition, attitude and intention to purchase of the product/ brand placement in animation. Please answer carefully based on your true feelings.

1. These questions are used to test your cognition of the product/ brand placement.

How familiar are you with the brands? Please select the options below to describe your opinions.

	Never heard of the brand	Heard of the brand but unfamiliar with its products	Heard of the brand but familiar with only a few of its products	Heard of the brand and familiar with some of its products	Heard of the brand and familiar with most of its products
Su Ning	○	○	○	○	○
MI	○	○	○	○	○
Tencent	○	○	○	○	○
OPPO	○	○	○	○	○
Three Squirrels	○	○	○	○	○
QinQin Snack	○	○	○	○	○
XingXin Internet	○	○	○	○	○
Fanta	○	○	○	○	○
McDonald’s	○	○	○	○	○
Master Kong Green Tea	○	○	○	○	○
Pizza Hut	○	○	○	○	○
ChangAn Deepal	○	○	○	○	○
BMW	○	○	○	○	○

2. These questions are used to test your attitude of the product/ brand placement.

How favorable are you with the brands? Please select the options below to describe your feeling.

	Low favorability toward the brand	Slightly low favorability toward the brand	Neutral	Slightly high favorability toward the brand	High favorability toward the brand
Su Ning	○	○	○	○	○
MI	○	○	○	○	○
Tencent	○	○	○	○	○
OPPO	○	○	○	○	○
Three Squirrels	○	○	○	○	○
QinQin Snack	○	○	○	○	○
XingXin Internet	○	○	○	○	○
Fanta	○	○	○	○	○
McDonald’s	○	○	○	○	○
Master Kong Green Tea	○	○	○	○	○
Pizza Hut	○	○	○	○	○
ChangAn Deepal	○	○	○	○	○
BMW	○	○	○	○	○

3. These questions are used to test your purchase intention of the product/ brand placement.

Do you want to buy the following product/brand? Please select the options below to describe your opinions.

	No purchase intention whatsoever	25% willingness to purchase	50% willingness to purchase	75% willingness to purchase	100% willingness to purchase
Su Ning	○	○	○	○	○
MI	○	○	○	○	○
Tencent	○	○	○	○	○
OPPO	○	○	○	○	○
Three Squirrels	○	○	○	○	○
QinQin Snack	○	○	○	○	○
XingXin Internet	○	○	○	○	○
Fanta	○	○	○	○	○
McDonald’s	○	○	○	○	○
Master Kong Green Tea	○	○	○	○	○
Pizza Hut	○	○	○	○	○
ChangAn Deepal	○	○	○	○	○
BMW	○	○	○	○	○

Appendix D

The product placement in animation

Part 3: Post-test Questionnaire

These questions are used to test your cognition, attitude and intention to purchase of the product/ brand placement in animation. Please answer carefully based on your true feelings.

1. These questions are used to test your cognition of the product/ brand placement.

After watched the animations, how familiar (identify or recall) are you with the brands embedded in the animation? Please select the options below to describe your opinions.

	Never heard of the brand	Heard of the brand but unfamiliar with its products	Heard of the brand but familiar with only a few of its products	Heard of the brand and familiar with some of its products	Heard of the brand and familiar with most of its products
Su Ning	○	○	○	○	○
MI	○	○	○	○	○
Tencent	○	○	○	○	○
Three Squirrels	○	○	○	○	○
QinQin Snack	○	○	○	○	○
XingXin Internet	○	○	○	○	○
McDonald’s	○	○	○	○	○
Master Kong Green Tea	○	○	○	○	○
Pizza Hut	○	○	○	○	○
ChangAn Deepal	○	○	○	○	○

2. These questions are used to test your attitude of the product/ brand placement.

After watched the animations, how favorable (like or dislike) are you with the brands embedded in the animation? Please select the options below to describe your feeling.

	Low favorability toward the brand	Slightly low favorability toward the brand	Neutral	Slightly high favorability toward the brand	High favorability toward the brand
Su Ning	○	○	○	○	○
MI	○	○	○	○	○
Tencent	○	○	○	○	○
Three Squirrels	○	○	○	○	○
QinQin Snack	○	○	○	○	○
XingXin Internet	○	○	○	○	○
McDonald’s	○	○	○	○	○
Master Kong Green Tea	○	○	○	○	○
Pizza Hut	○	○	○	○	○
ChangAn Deepal	○	○	○	○	○

3. These questions are used to test your purchase intention of the product/ brand placement.

After watched the animations, do you want to buy the following product/brand embedded in the animation? Please select the options below to describe your opinions.

	No purchase intention whatsoever	25% willingness to purchase	50% willingness to purchase	75% willingness to purchase	100% willingness to purchase
Su Ning	○	○	○	○	○
MI	○	○	○	○	○
Tencent	○	○	○	○	○
Three Squirrels	○	○	○	○	○
QinQin Snack	○	○	○	○	○
XingXin Internet	○	○	○	○	○
McDonald’s	○	○	○	○	○
Master Kong Green Tea	○	○	○	○	○
Pizza Hut	○	○	○	○	○
ChangAn Deepal	○	○	○	○	○